CCS Rule Change Notice For:

Rules for Classification of Sea-Going Steel Ships, 2012;

Rules for Materials and Welding, 2012

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Beijing

1. RULES FOR CLASSIFICATION OF SEA-GOING STEEL SHIPS, 2012:

PART ONE PROVISIONS OF CLASSIFICATION

CHAPTER 5 SURVEYS AFTER CONSTRUCTION

Section 2 TYPES AND PERIODS OF SURVEYS

In paragraph 5.2.3.4, the following sentence is added after the words "…, subject to provisions of Section 11 of this Chapter.":

"For ships below 15 years of age, two consecutive in-water surveys may be permitted, provided that the relevant requirements of Appendix 21 of this Chapter are complied with."

Section 11 SURVEYS OF THE OUTSIDE OF THE SHIP'S BOTTOM AND RELATED ITEMS

The existing subparagraph 5.11.2.1(7) is replaced by the following:

"(7) When such surveys are part of a special machinery survey, a mooring test is to be carried out to verify satisfaction operation of main and auxiliary engines. When significant repairs are carried out to main or auxiliary engines or steering gear, consideration is to be given to a sea trial which is to be conducted to the satisfaction of the attending Surveyor①."

A new Appendix 21 is added as follows:

"Appendix 21 Guidelines for Extended Interval between Surveys in Dry Dock – Extended Dry-docking (EDD) Scheme

1 GENERAL

1.1 Introduction

1.1.1 The intervals between inspections of the outside of the ship's bottom are specified in the relevant requirements of SOLAS, IACS and in CCS Rules and require a minimum of two inspections to be carried out during the 5-year period of validity of the Safety Construction Certificate/5-year Special Survey period. SOLAS Regulation I/10(v) only requires a minimum of two inspections of the outside of the ship's bottom and does not specify a ship must be dry-docked out of the water.

1.1.2 IMO Resolution A.1053(27) as amended, Survey Guidelines for the Harmonized System of Survey and Certification", requires that inspections of the outside of the ship's bottom should normally be carried out with the ship in a dry dock. However, it also provides that Administrations may give consideration to alternate inspections being carried out with the ship afloat.

1.1.3 The Guidelines recommend the acceptance procedure for schemes which extend the

① Applicable to surveys commenced on or after 01 January 2014.

interval between surveys in dry dock. Ships eligible for the Extended Dry-Docking (EDD) scheme are to meet the provisions and conditions described in the Guidelines.

1.1.4 Ships, which comply with the requirements of these Guidelines, may be permitted to carry out two consecutive in-water surveys. A minimum of two inspections of the outside of the ship's bottom are be carried out during the statutory renewal period of five years/special survey period of five years and the intervals between any two of such inspections are not to exceed 36 months.

1.1.5 The schemes which extend the interval between dry-docking surveys are normally tripartite projects between the Owner, the flag Administration and CCS. Acceptance into such a scheme is subject to a formal written agreement with the ship's flag Administration including any additional specific requirements of the flag Administration.

1.2 Application

1.2.1 Owners/Managers requesting a ship be considered for the EDD scheme, are to apply to CCS in writing, confirming and describing compliance with the requirements and conditions specified in the Guidelines.

1.2.2 Upon the Owner's request, the extended interval for each ship will be considered on a case-by-case basis by CCS. CCS will assist in forwarding the Owner's application to the flag Administration.

1.2.3 The following ships and ship types are not eligible for the extended dry-docking scheme described in these Guidelines:

- Passenger Ships;
- Ships subject to the Enhanced Survey Program (ESP);
- Ships subject to the requirements of Sections 5 and 16 of Chapter 5 of this PART;
- Ships fitted with propulsion thrusters;
- Ships where the propeller connection to the shaft is by means of a keyed taper;
- High Speed Craft (HSC).

1.2.4 The dry-docking scheme will operate based upon the ship's age when entering the scheme. For ships already in service, the EDD scheme may be implemented at any time until a ship reaches 10 years of age (that is, the inspection of the outside of the ship's bottom required for the special survey at 10 years of age must be completed once the ship reaches this age).

1.2.5 No extension is to be granted for the dry-docking required at the end of each extended dry-docking period.

1.3 Information to be submitted by the Owner

1.3.1 Prior to acceptance into an EDD scheme, the Owner is to submit the following information:

(1) Provisions for carrying out maintenance required on electric/electronic sensors, e.g. echo-sounder, Doppler-log, propeller speedlog or backpressure speedlog, seawater temperature

gauges, electronic draught reading, etc.;

(2) Provisions for maintaining the draft marks fore, aft and midships as well as loadline marks and all other required hull markings;

(3) Maintenance required of thrusters and stabilisers, if fitted, and provisions for carrying out surveys or maintenance or as required by the Surveyor;

(4) Service experience to date with hull coating system covered by the manufacturer's guarantee that the underwater coatings used are designed to last for the extended period since the coating is to remain effective for the extended dry-docking period;

(5) Impressed cathodic protection system or provisions for renewal of external hull sacrificial anodes in the afloat condition.

1.4 Reviews by CCS

1.4.1 CCS is to carry out the following reviews prior to accepting a ship into an EDD scheme:

(1) Items submitted by the Owner as required in 1.3 above;

(2) Ship's history with particular attention to any previous findings affecting the underwater body.

1.5 Arrangements

1.5.1 Prior to acceptance into an EDD scheme, ships enrolled for an extended dry-docking interval scheme are to comply with the following requirements:

(1) The ship is to comply with the in-water survey requirements of CCS;

(2) Protective coating in double bottom/double side ballast tanks, void spaces and all other spaces adjacent to the shell are to be maintained in GOOD condition;

(3) The shafting arrangement is to fulfil CCS requirements for Tail shaft Condition Monitoring Survey Arrangement;

(4) Hull maintenance scheme is to be implemented in accordance with ISM requirements.

2 Survey Requirements

2.1 In-water survey requirements

2.1.1 The in-water survey is to be carried out in accordance with the relevant requirements of paragraph 5.2.3, Section 2 and of Section 11, Chapter of this PART.

2.1.2 An in-water survey plan is to be submitted to CCS for review in advance of the survey and should include the following:

(1) Scheduled time and location for survey;

(2) Name of approved diving company;

(3) Means for cleaning of the hull below waterline;

(4) Means of access for examination of sea chests, sea valves and box coolers;

(5) Provisions for determining the condition of anchoring equipment, ranging of anchor chain cables and examination of the chain lockers when due for survey and/or as required by the Surveyor;

(6) Provisions for surveying and maintaining sea connections including thickness measurements of sea chests;

(7) Results of inspections by the Owner's personnel of double bottom/double side ballast tanks (during the last 3 years) and other spaces adjacent to the shell with reference to structural deterioration in general, leakages in tank boundaries and piping and condition of the protective coating;

(8) Conditions for internal examination of double bottom/double side ballast tanks (e.g., information regarding tank cleaning, gas freeing, ventilation, lighting, etc.).

2.1.3 Prior to commencement of the in-water survey, a survey planning meeting is to be held between the attending Surveyor(s), the Owner's representative in attendance, the diving company and the master of the ship or an appropriate representative appointed by the Owner for the purpose of ascertaining that all the arrangements envisaged in the survey plan are in place, so as to ensure the safe and efficient conduct of the survey work to be carried out.

2.1.4 A comprehensive report of findings, gaugings, clearances and any work undertaken, including recordings of representative CCTV images, is to be submitted by the Owner to all involved parties.

2.2 Special survey/statutory renewal requirements

2.2.1 It should be noted that the periodicity of the ship's special survey and statutory renewal surveys will not change, therefore provision must be made for carrying out all such surveys and any repairs afloat, where not dry-docking.

2.3 Survey findings

2.3.1 If the in-water survey reveals damage, deterioration or other conditions that requires early attention, the Surveyor may require that the ship be dry-docked in order that a detailed survey can be undertaken and necessary repairs carried out.

2.3.2 If temporary repairs carried out to any underwater parts are considered acceptable, these must be made permanent within a due date decided by the Surveyor.

2.3.3 The owner is to request CCS to perform a survey in dry dock in any event or circumstance in the operation of the ship which could have led to underwater damages or deterioration in the crew's knowledge or opinion.

2.3.4 If the coating condition in double bottom/double side ballast tanks, void spaces and dry spaces is found in less than GOOD condition, the Owner is to restore the coating to GOOD.

3 Termination of EDD Scheme

3.1 Termination of EDD scheme

3.1.1 The inspection of the outside of the ship's bottom required for the special survey at 15 years of age is to be carried out in a dry dock. All ships in an EDD scheme are to be dis-enrolled once the ship reaches 15 years of age.

3.1.2 The Extended Dry-docking Scheme will be terminated in cases of change of the ship's Owner, management or flag Administration.

3.1.3 CCS may dis-enrol a ship from an EDD scheme at any time should it be found that the conditions for maintaining the EDD scheme are not fulfilled anymore.

3.1.4 Once the conditions for the EDD scheme are no longer present, the ship will return to the normal docking interval and any due dock survey is to be carried out by the due date."

PART TWO HULL

CHAPTER 2 HULL STRUCTURES

Section 14 STEMS, STERN FRAMES, BULBOUS BOWS, PROPELLER SHAFT BRACKETS AND RUDDER HORNS

The existing paragraph 2.14.2.5 is replaced by the following:

"2.14.2.5 The section modulus W_z of sole pieces (see Figure 2.14.2.5) about the vertical neutral axis (z-axis) at any considered section, is not to be less than that obtained from the following formula:

$$W_z = \frac{K}{80} Px \quad \text{cm}^3$$

where: P — supporting force exerted by the sole piece on rudder blade, in N, to be calculated according to the relevant requirements of Section 1, Chapter 3 of this PART;

K — material factor according to 1.5.1.4 of this PART for fabricated sole pieces; material factor according to 3.1.1.5 of this PART for cast sole pieces;

x — distance between the axis of rudder stock and the section under consideration, in m, to be taken not less than 0.5ls, ls being the maximum distance, in m, (see Figure 2.14.2.5)."

In paragraphs 2.14.2.7 and 2.14.2.8, every letter "C" is replaced by letter "K".

The existing paragraph 2.14.7.3 is replaced by the following:

"2.14.7.3 The section modulus W of rudder horns around the x-axis at any horizontal section is not to be less than that obtained from the following formula:

$$W = \frac{K}{67} M_b \quad \text{cm}^3$$

where: M_b — bending moment at the section under consideration, in N·m, to be calculated

according to 2.14.7.2 of this Section;

K — material factor required in 1.5.1.4 of this PART for fabricated rudder horns; material factor required in 3.1.1.5 of this PART for cast rudder horns."

Section 23 STRENGTHENING FOR GRABS

In paragraph 2.23.2.1, the notation "GRAB-[X]" is replaced by the notation "GRAB-(X)".

Appendix 3 IACS NO.97 RECOMMENDATION FOR UR S11.2.1.3

(Rev. 5, June 2007)

In paragraph 3, the sentence "Table 1 shows the filling level in partially filled BW tanks Nos.1 (P/S) and 5 (P/S) for the operational conditions during ballast voyage." is moved to be immediately before Table 1.

CHAPTER 4 STRENGTHENING FOR NAVIGATION IN ICE

Section 2 ICE STRENGTHENING FOR CLASSES B1*, B1, B2 AND B3

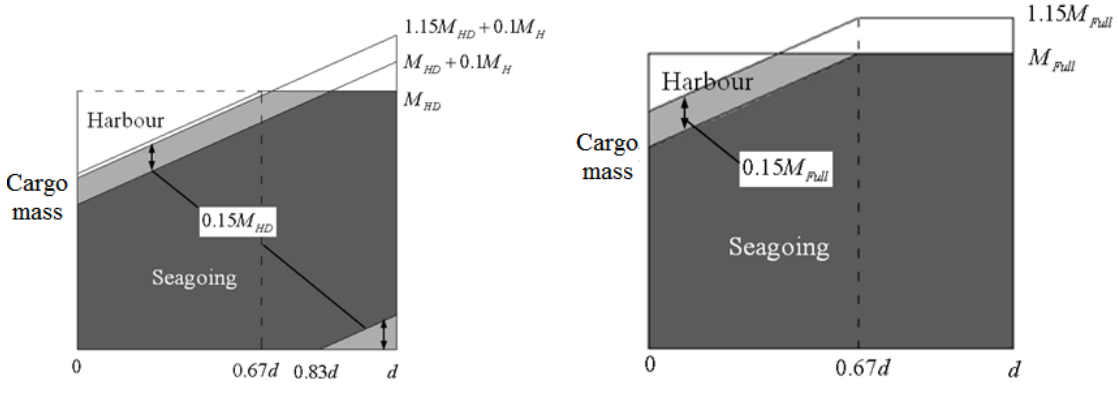
In item (a) of subparagraph 4.2.4.4(2), the description "l — span of the frame, in m; where ice stringers are fitted, it may be taken as the distance between ice stringers or between stringer and deck or between stringers and bottom, whichever is the greatest;" is replaced by the description "l — span of the frame, in m;".

In paragraph 4.2.4.6, the words "Web frames within ice belt" are replaced by the words "Web frames".

CHAPTER 8 BULK CARRIERS

Appendix 2 HOLD MASS CURVES

Figure 2.1.2 is replaced by the following:



(a) Loaded hold

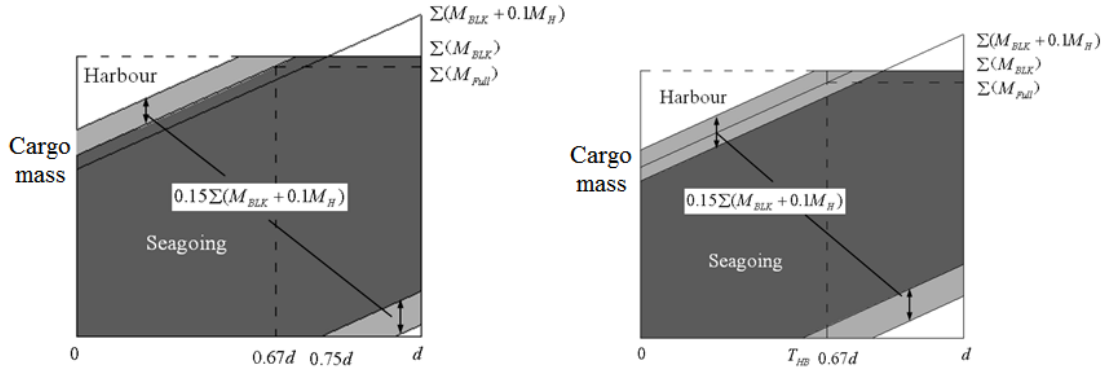
(b) Cargo hold which may be empty at the maximum draught

Figure 2.1.2 Mass Curve for Ships with Alternate Load under Multi-port Condition

In paragraph 2.2.3, the formula "$W_{\max}(T_i) = M_{HD} + 0.1M_H - 1.025V_H \dfrac{(0.67d - T_i)}{h}$" is replaced by the formula "$W_{\max}(T_i) = M_{HD} - 1.025V_H \dfrac{(0.67d - T_i)}{h}$".

In paragraph 3.1.3, the sentence "Mass curves of loaded cargo hold for ships with alternate load of packed cargo under no multi-port condition are shown in Figure 3.1.3." is replaced by the sentence "Mass curves of loaded cargo hold for ships with alternate load of packed cargo are shown in Figure 3.1.3."

Figure 3.1.3 is replaced by the following:



(a) Under multi-port condition (b) Under no multi-port condition

Figure 3.1.3 Mass Curves of Loaded Cargo Hold for Ships with Alternate Load of Packed Cargo

In paragraph 3.1.5, the sentence "Mass curves of loaded cargo hold for ships with alternate without packed cargo under no multi-port condition and ships with homogeneous load are shown in Figure 3.1.5." is replaced by the sentence "Mass curves of loaded cargo hold for ships with alternate load of packed cargo are shown in Figure 3.1.3."

PART SIX FIRE PROTECTION, DETECTION AND EXTINCTION

CHAPTER 3 FIRE SAFETY MEASURES

Section 4 MISCELLANEOUS

In subparagraph 3.4.14.1(2), the words "…paragraphs 4.2.2.7…" are replaced by the words "…paragraphs 4.2.2.9…"

Table 8.2.3 is modified as following:

Bulkhead	**At lower end of l_{cg}**	**At mid length of l_{cg}**	**At upper end of l_{cg}**
Transverse Bulkhead	C_1	C_{m1}	$0.80C_{m1}$
Longitudinal Bulkhead	C_3	C_{m3}	$0.65C_{m3}$

Where:

C_1 $= a_1 + b_1\sqrt{\frac{A_{dt}}{b_{dk}}}$, but is not to be taken as less than 0.60

$= a_1 - b_1\sqrt{\frac{A_{dt}}{b_{dk}}}$, for transverse bulkhead with no lower stool, but is not to be taken as less than 0.55

a_1 $= 0.95 - \frac{0.41}{R_{bt}}$,

=1.0, for transverse bulkhead with no lower stool

b_1 $= -0.20 + \frac{0.078}{R_{bt}}$,

=0.13, for transverse bulkhead with no lower stool

C_{m1} $= a_{m1} + b_{m1}\sqrt{\frac{A_{dt}}{b_{dk}}}$ but is not to be taken as less than 0.55

$= a_{m1} - b_{m1}\sqrt{\frac{A_{dt}}{b_{dk}}}$ for transverse bulkhead with no lower stool, but is not to be taken as less than 0.60

a_{m1} $= 0.63 + \frac{0.25}{R_{bt}}$

=0.85, for transverse bulkhead with no lower stool

b_{m1} $= -0.25 - \frac{0.11}{R_{bt}}$

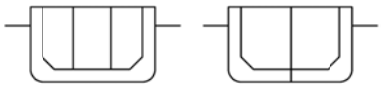
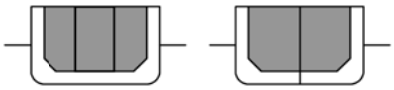
=0.34, for transverse bulkhead with no lower stool

C_3 $= a_3 + b_3\sqrt{\frac{A_{dl}}{l_{dk}}}$ but is not to be taken as less than 0.60

$= a_3 - b_3\sqrt{\frac{A_{dl}}{l_{dk}}}$ for longitudinal bulkhead with no lower stool, but is not to be taken as less than 0.55

a_3	$= 0.86 - \frac{0.35}{R_{bl}}$
	=1.0， for longitudinal bulkhead with no lower stool

Table 8.2.9 is modified as following:

Structural Member	Design Load Set[1, 5, 6]	Load Component	Draught	Comment	Diagrammatic Representation
Double bottom floors and girders[3]	1	P_{ex}	$0.9T_{SC}$[2]	Sea pressure only	
	2	P_{ex}	T_{SC}		
	12	P_{in}-P_{ex}	0.6 T_{SC}	Net pressure difference between cargo pressure and sea pressure	
	13	P_{in}-P_{ex}	(4)		

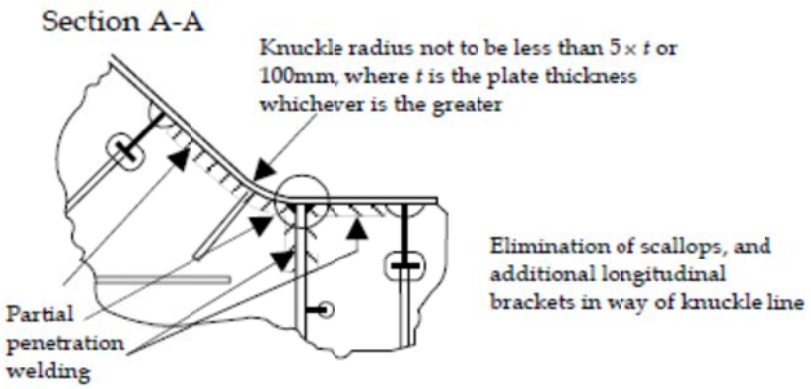
In paragraph 2.6.7.5, the sentence “The required shear area at mid effective bending span is to be taken as 50% of that required in the ends,” is replaced by “The required shear area at mid effective shear span is to be taken as 50% of that required in the ends,”.

Table 8.4.2 is modified as following:

Acceptance Criteria Set	Structural Member		β_a	α_a	$C_{a-\max}$
AC1	Longitudinal Strength Members	Longitudinally stiffened plating	0.9	0.5	0.80
		Transversely or vertically stiffened plating	0.9	1.0	0.80
	Other member		0.8	0	0.80
AC2	Longitudinal Strength Member	Longitudinally stiffened plating	1.05	0.5	0.95
		Transversely or vertically stiffened plating	1.05	1.0	0.95
	Other members, including watertight boundary plating		1.0	0	1.00

APPENDIX C FATIGUE STRENGTH ASSESSMENT

Figure C.2.4 if modified as following:

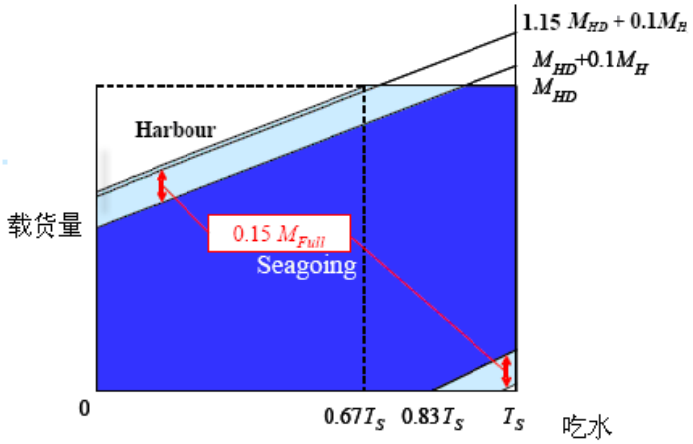


PART TEN BULK CARRIERS STRUCTURE（CSR）

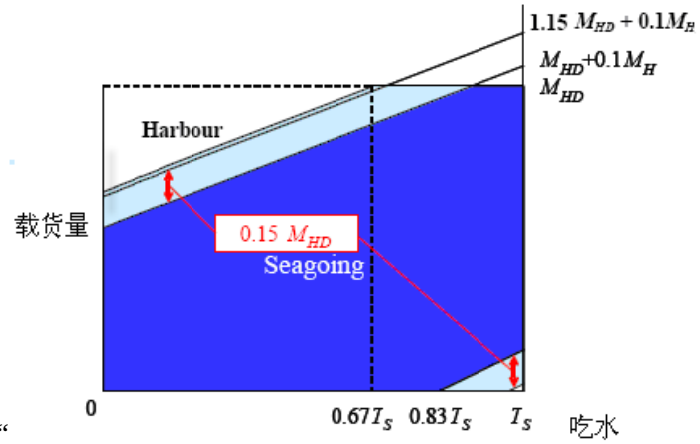
CHAPTER 4 DESIGN LOADS

Appendix 1 HOLD MASS CURVES

In figure 1(a), the figure “



” is replaced by “



”.

In paragraph 2.2.3, the formula “ $W_{\max}(T_i) = M_{HD} + 0.1M_H - 1.025V_H \dfrac{0.67T_S - T_i}{h}$ ” is replaced by “ $W_{\max}(T_i) = M_{HD} - 1.025V_H \dfrac{0.67T_S - T_i}{h}$ ”.

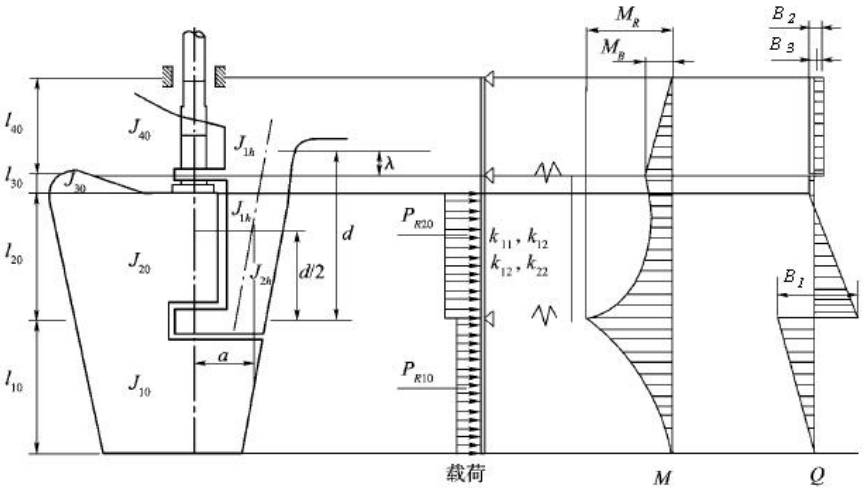
Chapter 10 Hull outfitting

Section 1 Rudder and Manoeuvring Arrangement

In paragraph 2.1.1, the sentences “ κ 1 : Coefficient, depending on the aspect ratio λ , taken equal to: κ 1 = (λ + 2)/ 3 , where λ need not be taken greater than 2” are replaced by “ κ 1 : Coefficient, depending on the aspect ratio Λ , taken equal to: κ 1 = (Λ + 2)/ 3 , where Λ need not be taken greater than 2”.

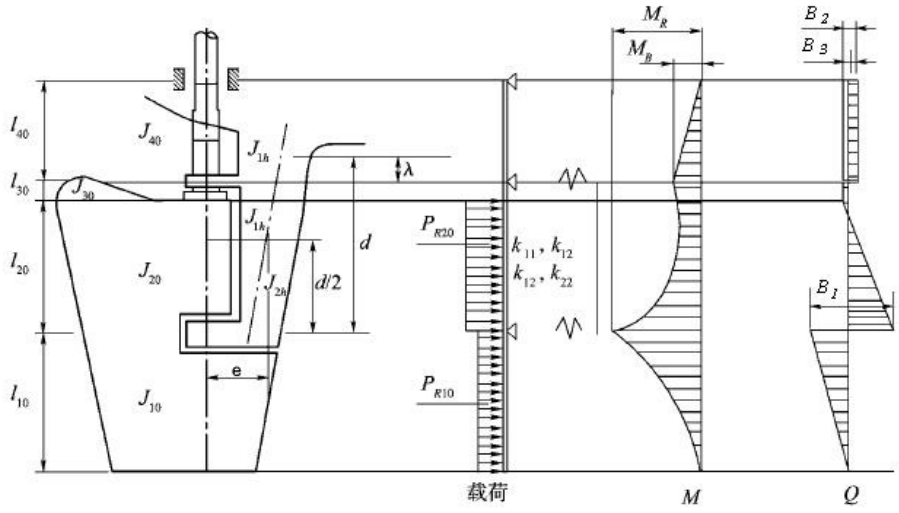
In paragraph 3.2.1, the sentences “M_b : Bending stress at the neck bearing, in N.m” are replaced by “M_b : Bending moment at the neck bearing, in N.m”

In figure 5, the figure

“ 

” is replaced by

“



”.

$$p_{req1} = \frac{2Q_F \times 10}{d_m^2 \, \ell \, \pi \, \mu_0}$$

In paragraph 4.5.4, the formula “ ” is replaced by

$$p_{req1} = \frac{2Q_F}{d_m^2 \, \ell \, \pi \, \mu_0} 10^3$$

“ ”.

2. Rules for Materials and Welding, 2012:

PART ONE METALLIC MATERIALS

CHAPTER 3 STEEL PLATES, FLAT BARS AND SECTIONS

Section 3 HIGHER STRENGTH HULL STRUCTURAL STEELS

A new paragraph 3.3.1.2 is added as follows:

"3.3.1.2 Higher strength hull structural steels with thicknesses of 50 mm ~ 100 mm and a minimum yield point of 460 N/mm^2, which are used in construction of large container ships, are to comply with the requirements of CCS Guidelines for Inspections of Thick Marine High Tensile Steel Plates①."

PART THREE WELDING

CHAPTER 1 GENERAL

Section 1 GENERAL PROVISIONS

A new paragraph 1.1.1.4 is added as follows:

"1.1.1.4 The welding of higher strength hull structural steels with thicknesses of 50 mm ~ 100 mm and a minimum yield point of 460 N/mm^2 is to comply with the relevant requirements of this PART and in addition, the requirements of CCS Guidelines for Inspections of Thick Marine High Tensile Steel Plates①:."

① Applicable to ships contracted for construction on or after 1 January 2014.