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# Editorial Correction for Technical Rules and Guidance

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About this document:

This document is a compilation of corrections of editorial corrections of the Society's Technical Rules.

Errata in this document refer to corrections that do not change the requirements, intent, or technical background of the requirements specified in the rules and guidance, e.g., correction of typographical errors or references.

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Guidance for the Approval and Type Approval of Materials and Equipment for Marine Use Annex
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# Regulations for the Classification and Registry of Ships Chapter 2 2.1.1

Correction	Present	Note
Ships will be assigned a class and registered in the	1 0 0	Wording correction
Classification Register defined in 2.1.5 when the	Classification Register defined in 2.1.5 when the	
ships have been surveyed for classification by the	ships have been surveyed for classification by the	
Society's Surveyors (hereinafter referred to as "the	Society's Surveyors (hereinafter referred to as "the	
Surveyors") with regard to their hull and equipment,	Surveyors") with regard to their hull and equipment,	
machinery, fire protection and detection, means of	machinery, fire protection and detection, means of	
escape, fire extinction, electrical installations,	escape, fire extinction, electrical installations,	
stability and load lines in accordance with the rules	stability and load lines in accordance with the rules	
for the survey and construction of ships provided	for the survey and construction of ships provided	
separately (hereinafter referred to as "the Ship	separately (hereinafter referred to as "the Ship	
Rules") and found by the Society to be in compliance	Rules") and found by the Society to be in compliance	
with the requirements of the Ship Rules. However, the	with the requirements of the Ship Rules. However, the	
Society may refuse the classification of ships	Society may refuse the classification of ships	
regardless of the results of the survey in accordance	regardless of the results of the survey in accordance	
with 1.4-3 <del>, Chapter 1</del> of the "Conditions of Service	with 1.4-3, Chapter 1 of the "Conditions of Service	
for Classification of <u>shipsShips</u> and	for Classification of ships and registration of	
registration <u>Registration</u> of	installations".	
installations"Installations.		

# Regulations for the Classification and Registry of Ships Chapter 2 2.6-1

	Correction		Present	Note
1	The Society will withdraw the class and notify the	1	The Society will withdraw the class and notify the	Wording correction
same t	to the owner of a ship when:	same t	o the owner of a ship when:	therating correction
(1)	it is requested by the owner of the ship;	(1)	it is requested by the owner of the ship;	
(2)	the Society recognizes that the ship can no longer be	(2)	the Society recognizes that the ship can no longer be	
	used because it was scrapped, sank, etc.;		used because it was scrapped, sank, etc.;	
(3)	the Surveyors report that the ship has not complied	(3)	the Surveyors report that the ship has not complied	
	with the Ship Rules as regards surveys defined in 2.2		with the Ship Rules as regards surveys defined in 2.2	
	and the Society accepts the report;		and the Society accepts the report;	
(4)	the ship is not subjected to the survey defined in 2.2;	(4)	the ship is not subjected to the survey defined in 2.2;	
(5)	survey fees are not paid; or	(5)	survey fees are not paid; or	
(6)	the ships subject to 1.4-3, Chapter 1 of the	(6)	the ships subject to 1.4-3, Chapter 1 of the	
	"Conditions of Service for Classification of		"Conditions of Service for Classification of ships	
	shipsShips and registrationRegistration of		and registration of installations".	
	installations"Installations.		-	

# Regulations for the Classification and Registry of Ships Chapter 3 3.1.1

Correction	Present	Note
Installations indicated in (1) to (15) hereunder of the	Installations indicated in (1) to (15) hereunder of the	Wording correction
ship to be registered or registered under 2.1 will be assigned	ship to be registered or registered under 2.1 will be assigned	to of aning correction
characters and registered in the Installations Register defined	characters and registered in the Installations Register defined	
in 3.1.4 when the installations have been surveyed for	in 3.1.4 when the installations have been surveyed for	
registration by the Surveyors in accordance with the rules for	registration by the Surveyors in accordance with the rules for	
the survey and construction of installations provided	the survey and construction of installations provided	
separately (hereinafter referred to as "the Installation Rules")	separately (hereinafter referred to as "the Installation Rules")	
and found by the Society to be in compliance with the	and found by the Society to be in compliance with the	
requirements of the Installation Rules. However, the Society	requirements of the Installation Rules. However, the Society	
may refuse the registration of installations regardless of the	may refuse the registration of installations regardless of the	
results of the survey in accordance with 1.4-3, Chapter 1 of	results of the survey in accordance with 1.4-3, Chapter 1 of	
the "Conditions of Service for Classification of shipsShips	the "Conditions of Service for Classification of ships and	
and registration <u>Registration</u> of installations" <u>Installations</u> .	registration of installations".	
(1) Cargo Refrigerating Installations	(1) Cargo Refrigerating Installations	
(2) Cargo Handling Appliances	(2) Cargo Handling Appliances	
(3) Marine Pollution Prevention Installations	(3) Marine Pollution Prevention Installations	
(4) Safety Equipment	(4) Safety Equipment	
(5) Radio Installations	(5) Radio Installations	
(6) Automatic and Remote Control Systems	(6) Automatic and Remote Control Systems	
(7) Navigation Bridge Systems	(7) Navigation Bridge Systems	
(8) Diving Systems	(8) Diving Systems	
(9) Preventive Machinery Maintenance Systems	(9) Preventive Machinery Maintenance Systems	
(10) Integrated Fire Control Systems	(10) Integrated Fire Control Systems	
(11) Hull Monitoring System	(11) Hull Monitoring System	
(12) Anti-Fouling Systems on Ships	(12) Anti-Fouling Systems on Ships	
(13) Centralized Cargo Monitoring and Control Systems	(13) Centralized Cargo Monitoring and Control Systems	
(14) Ballast Water Management Installations	(14) Ballast Water Management Installations	
(15) Other installations deemed appropriate by the Society	(15) Other installations deemed appropriate by the Society	

## Rules for the survey and construction of steel ships Part B Chapter 1 1.1.3-4

Correction	Present	Note
4 The classed ships may be subject to Unscheduled	4 The classed ships may be subject to Unscheduled	
Surveys when the confirmation of the status of the ship by	Surveys when the confirmation of the status of the ship by	
survey is deemed necessary in cases where the Society	survey is deemed necessary in cases where the Society	
considers the ship to be subject to 1.4-3 of the CONDITIONS	considers the ship to be subject to 1.4-3 of the CONDITIONS	
OF SERVICE FOR CLASSIFICATION OF SHIPS AND	OF SERVICE FOR CLASSIFICATION OF SHIPS AND	Reference correction
<b>REGISTRATION OF INSTALLATIONS.</b> Conditions of	<b>REGISTRATION OF INSTALLATIONS.</b>	
Service for Classification of Ships and Registration of		
Installations.		

## Rules for the survey and construction of steel ships Part B Chapter 1 1.1.5-1

Correction	Present	Note
1 Special Surveys, Docking Surveys carried out at the	1 Special Surveys, Docking Surveys carried out at the	
period specified in 1.1.3-1(4)(a), Boiler Surveys carried out at	period specified in 1.1.3-1(4)(a), Boiler Surveys carried out at	
the period specified in 1.1.3-1(5)(a) and Ordinary Surveys for	the period specified in 1.1.3-1(5)(a) and Ordinary Surveys for	
Propeller shafts Kind 2 specified in <del>1.1.3-1(6)(a)ii)<u>8.2.2-1(1)</u></del>	Propeller shafts Kind 2 specified in 1.1.3-1(6)(a)ii)1) may be	Reference correction
may be postponed as specified in (1) or (2) below subject to	postponed as specified in (1) or (2) below subject to the	
the approval by the Society in advance. However, no	approval by the Society in advance. However, no	
postponement is to be permitted on the period of 36 <i>months</i>	postponement is to be permitted on the period of 36 months	
between any two Docking Surveys, Boiler Surveys and	between any two Docking Surveys, Boiler Surveys and	
Ordinary Surveys for Propeller shafts Kind 2 respectively.	Ordinary Surveys for Propeller shafts Kind 2 respectively.	
(1) Maximum 3 <i>months</i> for the purpose of allowing the	(1) Maximum 3 <i>months</i> for the purpose of allowing the	
ship to complete its voyage to the port in which it is	ship to complete its voyage to the port in which it is	
to be surveyed.	to be surveyed.	
(2) Maximum 1 <i>month</i> for the ship engaged on short	(2) Maximum 1 month for the ship engaged on short	
voyages.	voyages.	

## Rules for the survey and construction of steel ships Part B Chapter 1 1.1.7-1

Correction	Present	Note
1 For ships which are applicable to Chapter 31B	1 For ships which are applicable to Chapter 31B	
(Requirements related to Chapter 31B specified in this	(Requirements related to Chapter 31B specified in this	
Chapter are those which are applied to ships which have been	Chapter are those which are applied to ships which have been	
contracted for construction prior to 1 July 2023), continuing	contracted for construction prior to 1 July 2023), continuing	
compliance with An3- and An.5, Annex 1.21, Part 2-2, Part	compliance with An3. and An.5, Annex 1.2, Part 2-2, Part C	Reference correction
C is to be verified at Special Surveys and Intermediate	is to be verified at Special Surveys and Intermediate Surveys	
Surveys (for ships over 10 years of age). For this purpose, the	(for ships over 10 years of age). For this purpose, the thickness	
thickness measurements as deemed appropriate by the Society	measurements as deemed appropriate by the Society are to be	
are to be carried out for the vertical corrugated watertight	carried out for the vertical corrugated watertight bulkhead	
bulkhead abaft the foremost hold, in addition to those	abaft the foremost hold, in addition to those according to	
according to Table B5.15.	Table <b>B5.15</b> .	

## Rules for the survey and construction of steel ships Part B Chapter 1 1.1.7-3

Correction	Present	Note
<b>3</b> For ships which are applicable to <b>31B.2.1-2</b> , <b>Part C</b> ,	<b>3</b> For ships which are applicable to <b>31B.2.1-2</b> , <b>Part C</b> ,	
the following surveys are to be carried out at periodical	the following surveys are to be carried out at periodical	
surveys in addition to the surveys required in this chapter.	surveys in addition to the surveys required in this chapter.	
(1) is omitted.	(1) is omitted.	
(2) Function tests of the bilge well high level alarms and	(2) Function tests of the bilge well high level alarms and	
hold water ingress alarms as stated in (2) and (4) of	hold water ingress alarms as stated in (2) and (4) of	
C31B.2.1-2, Part C of the Guidance for the Survey		
and Construction of Steel Ships are to be carried out	Construction of Steel Ships are to be carried out in	Reference correction
in addition to those required at periodical surveys as	1 1	
stated in 3.2.3, 4.2.3 and 5.2.3.	stated in 3.2.3, 4.2.3 and 5.2.3.	

## Rules for the survey and construction of steel ships Part B Chapter 1 1.1.8-3

Correction	Present	Note
3 If the survey to be carried out under the requirements	3 If the survey to be carried out under the requirements	
of -2(2) above is a Special Survey, either the overdue Special	of -2(2) above is a Special Survey, either the overdue Special	
Survey or the next due Special Survey is to be carried out. In	Survey or the next due Special Survey is to be carried out. In	
such cases, the validity of the Classification Certificate is to		
be in accordance with the requirements of 2.4.2-36, Guidance	be in accordance with the requirements of 2.4.2-3, Guidance	Reference correction
for the Classification and Registry of Ships corresponding		
to the Special Survey to be carried out.	to the Special Survey to be carried out.	

## Rules for the survey and construction of steel ships Part B Chapter 2 2.1.2-1

Correction	Present	Note
1 When it is intended to build a ship for classification by	1 When it is intended to build a ship for classification by	
the Society, the following plans and documents are to be	the Society, the following plans and documents are to be	
submitted for the approval by the Society before the work is	submitted for the approval by the Society before the work is	
commenced. The plans and documents may be submitted for	commenced. The plans and documents may be submitted for	
examination by the Society prior to making an application for	examination by the Society prior to making an application for	
the classification of the ship as stipulated otherwise by the	the classification of the ship as stipulated otherwise by the	
Society.	Society.	
((1) to (4) are omitted.)	((1) to (4) are omitted.)	
(5) Ships using low-flashpoint fuels	(5) Ships using low-flashpoint fuels	
((a) to (z) are omitted.)	((a) to (z) are omitted.)	
(aa) Plans and documents for the Gas Combustion	(aa) Plans and documents for the Gas Combustion	
Units (GCUs) specified in 1.3, Annex 2A, Part	Units (GCUs) specified in 1.3, Annex 2A, Part	
GF of the Guidance	GF of the Guidance	
(ab) Plans and documents for the gas-fuelled engines	(ab) Plans and documents for the gas-fuelled engines	
specified in 1.3, Annex <u>1.1.3-2</u> and 1.3, Annex	specified in 1.3, Annex 3 and 1.3, Annex 4, Part	Reference correction
4 <u>1.1.3-3</u> , Part GF of the <u>GuidanceRules</u>	GF of the Guidance	Reference correction
((ac) to (ak) are omitted.)	((ac) to (ak) are omitted.)	
(6) Plans and documents for in-water surveys specified in	(6) Plans and documents for in-water surveys specified in	
6.1.2-3	6.1.2-3	
(7) Other plans and documents not specified in (1)	(7) Other plans and documents not specified in (1)	
through (6) which are deemed necessary by the	through (6) which are deemed necessary by the	
Society	Society	

#### Rules for the survey and construction of steel ships Part B Chapter 2 2.1.2-8

Correction	Present	Note
<b>8</b> For ships using low-flashpoint fuels, the operational procedures and emergency procedures specified in <u>17.2.2-3</u> and <u>17.2.2-4 of 17.2.2</u> , Part GF <u>of the Rules</u> are to be submitted for Society approval.	procedures and emergency procedures specified in -3 and -4	Reference correction

#### Rules for the survey and construction of steel ships Part B Chapter 2 2.2.1-5

Correction	Present	Note
5 For ships using low-flashpoint fuels, the operational procedures and emergency procedures specified in <u>17.2.2-3</u> and <u>17.2.2-4 of 17.2.2</u> , Part GF <u>of the Rules</u> are to be submitted for Society approval.	procedures and emergency procedures specified in -3 and -4	Reference correction

#### Rules for the survey and construction of steel ships Part B Chapter 2 2.3.1-1

Correction	Present	Note
1 In the Classification Survey of all ships, sea trials	1 In the Classification Survey of all ships, sea trials	Reference correction
specified in following (1) to (13) are to be carried out in full	specified in following (1) to (13) are to be carried out in full	
load condition, in the calmest possible sea and weather	load condition, in the calmest possible sea and weather	
condition and in deep unrestricted water. However, where sea	condition and in deep unrestricted water. However, where sea	
trials cannot be carried out in full load condition, sea trials may	trials cannot be carried out in full load condition, sea trials may	
be carried out in an appropriate loaded condition. The noise	be carried out in an appropriate loaded condition. The noise	
measurements specified in (11) are to be carried out at either	measurements specified in (11) are to be carried out at either	
the full load condition or the ballast condition.	the full load condition or the ballast condition.	
((1) is omitted.)	((1) is omitted.)	
(2) Astern test	(2) Astern test	
((a) and (b) are omitted.)	((a) and (b) are omitted.)	
(c) For low pressure (i.e. pressure less than 1 <i>MPa</i> )	(c) For low pressure (i.e. pressure less than $1 MPa$ )	
gas-fuelled dual fuel engines, the confirmation	gas-fuelled dual fuel engines, the confirmation	
specified in (b)(1) is to be carried out for all	specified in (b)(1) is to be carried out for all	
operating modes (i.e. the applicable gas mode,	operating modes (i.e. the applicable gas mode,	
diesel mode, etc.). This test is to be carried out at	diesel mode, etc.). This test is to be carried out at	
the maximum power available in gas mode (See	the maximum power available in gas mode (See	
2.5.1-1(1)-in), Annex 1.1.3-3, Part GF of the	2.5.1-1(1) in Annex 1.1.3-3, Part GF or 2.5.1-	

<u>Rules</u> or 2.5.1-1(1<del>) in</del>), Annex 16.1.1-3, Part N of the Rules).

(d) To high pressure gas-fuelled dual fuel engines, the requirements for low pressure gas-fuelled dual fuel engines specified in (c) apply mutatis mutandis.

((3) and (4) are omitted.)

(5) Confirmation of no abnormality for the operating condition of machinery and behaviour of the ship during the trials

The performance tests of machinery installations are to include the following (a) to (j) in order to verify that the machinery installations have sufficient normal functions and reliability and are free from detrimental vibration within the numbers of revolutions used. However, these tests may be dispensed with where such tests have been conducted while the ship was anchored or at dockside. The preparations specified in 2.6.1-2(1), Part D are to be made before tests are carried out.

((a) to (f) are omitted.)

- (g) Low pressure (i.e. pressure less than 1 MPa) gasfuelled engines are to comply with the requirements specified in (a) and (g). For low pressure gas-fuelled dual fuel engines, the output tests and governor tests are to be carried out for all operating modes (i.e. the gas mode, diesel mode, etc.). This test is to be carried out at the maximum power available in gas mode (See 2.5.1-1(1)in), Annex 1.1.3-23, Part GF or 2.5.1-1(1)in), Annex 16.1.1-23, Part N). The 110% load test is not required for the gas mode.
- (h) To high pressure gas-fuelled engines, the requirements for low pressure gas-fuelled

1(1) in Annex 16.1.1-3, Part N).

(d) To high pressure gas-fuelled dual fuel engines, the requirements for low pressure gas-fuelled dual fuel engines specified in (c) apply mutatis mutandis.

((3) and (4) are omitted.)

(5) Confirmation of no abnormality for the operating condition of machinery and behaviour of the ship during the trials

The performance tests of machinery installations are to include the following (a) to (j) in order to verify that the machinery installations have sufficient normal functions and reliability and are free from detrimental vibration within the numbers of revolutions used. However, these tests may be dispensed with where such tests have been conducted while the ship was anchored or at dockside. The preparations specified in 2.6.1-2(1), Part D are to be made before tests are carried out.

- ((a) to (f) are omitted.)
- (g) Low pressure (i.e. pressure less than 1 MPa) gasfuelled engines are to comply with the requirements specified in (a) and (g). For low pressure gas-fuelled dual fuel engines, the output tests and governor tests are to be carried out for all operating modes (i.e. the gas mode, diesel mode, etc.). This test is to be carried out at the maximum power available in gas mode (See 2.5.1-1(1) in Annex 1.1.3-2, Part GF or 2.5.1-1(1) in Annex 16.1.1-2, Part N). The 110% load test is not required for the gas mode.
- (h) To high pressure gas-fuelled engines, the requirements for low pressure gas-fuelled

engines specified in (i) apply mutatis mutandis.	engines specified in (i) apply mutatis mutandis.
<ul><li>(i) Function tests of the safety devices and alarms of</li></ul>	<ul><li>(i) Function tests of the safety devices and alarms of</li></ul>
boilers	boilers
(j) Function tests of the safety devices and alarms of	
exhaust gas economizers	exhaust gas economizers
((6) to (13) are omitted.)	((6) to (13) are omitted.)

# Rules for the survey and construction of steel ships Part B Chapter 3 3.3.4-2

Correction	Present	Note
2 Surveys for ships fitted with azimuth thrusters are	2 Surveys for ships fitted with azimuth thrusters are to	
be carried out in accordance with the following $(1)$ to $(3)$ :	be carried out in accordance with the following (1) to (3):	
(1) and (2) are omitted	(1) and (2) are omitted	
(3) Ships where vibration measurement systems or Fe	- (3) Ships where vibration measurement systems or Fe-	
density measurement systems are used instead of the	density measurement systems are used instead of the	
temperature sensors and temperature recorders, in th	temperature sensors and temperature recorders, in the	
case of azimuth thrusters which use roller bearings a	s case of azimuth thrusters which use roller bearings as	
the bearings for propeller shafts Kind $1C$ , are	the bearings for propeller shafts Kind $1C$ , are to	
comply with the requirements specified in th	e comply with the requirements specified in the	
following (a) and (b).	following (a) and (b).	
(a) For the analysis records with the data submitte	d (a) For the analysis records with the data submitted	
by the executive management (hereinafted		
referred to as "management" in (3)), it is to be	•	
confirmed that the records have been evaluate		
by Society before the survey and retained of	by Society before the survey and retained on	
board. In the results, the management's opinion		
such as on the necessity for withdrawing th	such as on the necessity for withdrawing the	
azimuth thrusters, is to be included.	azimuth thrusters, is to be included.	
(b) It is to be confirmed that the lubricating o		
sampling and analysis specified in (1)(a), Item	, sampling and analysis specified in (1)(a), Item 5,	
Table B8.1-1         is being carried out regularly.	Table B8.1 is being carried out regularly.	Reference correction

## Rules for the survey and construction of steel ships Part B Chapter 5 5.2.2-1

Correction	Present	Note
1 At Special Surveys, items (1) to (4) below in addition	1 At Special Surveys, items (1) to (4) below in addition	
to hull, equipment, fire-extinction, and fittings specified in	to hull, equipment, fire-extinction, and fittings specified in	
4.2.2 are to be examined carefully.	<b>4.2.2</b> are to be examined carefully.	
((1) to (3) are omitted.)	((1) to (3) are omitted.)	
(4) For watertight cable penetrations, the surveys	(4) For watertight cable penetrations, the surveys	
specified in (a) to (c) below are to be carried out.	specified in (a) to (c) below are to be carried out.	
(a) All watertight cable penetrations are to be	(a) All watertight cable penetrations are to be	
examined to confirm their satisfactory condition.	examined to confirm their satisfactory condition.	
(b) The results of surveys are to be recorded in the	(b) The results of surveys are to be recorded in the	
watertight cable penetration register and the	watertight cable penetration register and the	
register is to be kept on board.	register is to be kept on board.	
(c) Firms approved by the Society under the " <b>Rules</b>	(c) Firms approved by the Society under the " <b>Rules</b>	
for Approval of <u>Manufactures</u> Manufacturers	for Approval of Manufactures and Service	Wording correction
and Service Suppliers" may carry out	Suppliers" may carry out inspections of	
inspections of watertight cable penetrations in	watertight cable penetrations in cases where	
cases where special consideration is given by the	special consideration is given by the attending	
attending surveyor. The attending surveyor is to	surveyor. The attending surveyor is to review the	
review the watertight cable penetration register	watertight cable penetration register which is	
which is recorded by the firm.	recorded by the firm.	

#### Rules for the survey and construction of steel ships Part B Chapter 5 5.2.6-1

Correction	Present	Note
1 At Special Surveys, thickness measurements are to be	1 At Special Surveys, thickness measurements are to be	
carried out in accordance with $(1)$ to $(5)$ below.	carried out in accordance with (1) to (5) below.	
(1) Thickness measurements are to be carried out using	(1) Thickness measurements are to be carried out using	
appropriate ultra-sonic gauging machines or other	appropriate ultra-sonic gauging machines or other	
approved means. The Surveyor may request that the	approved means. The Surveyor may request that the	
accuracy of the equipment be demonstrated.	accuracy of the equipment be demonstrated.	
(2) Thickness measurements are to be carried out at or	(2) Thickness measurements are to be carried out at or	
after the time of the 4th Annual Survey under the	after the time of the 4th Annual Survey under the	
attendance of the Surveyor by the firm approved by	attendance of the Surveyor by the firm approved by	
the Society under the "Rules for Approval of	the Society under the "Rules for Approval of	Wording correction
Manufactures <u>Manufacturers</u> and Service	Manufactures and Service Suppliers". The	worung correction
Suppliers". The surveyor may request to have	surveyor may request to have the measurements	
the measurements taken again to ensure	taken again to ensure acceptable accuracy.	
acceptable accuracy.		
((3)  to  (5)  are omitted.)	((3) to $(5) $ are omitted. $)$	

#### Rules for the survey and construction of steel ships Part B Annex 1.5.3 An5 An5.1.1-1

Correction	Present	Note
1 In principle, live streaming video and audio is to be	1 In principle, live streaming video and audio is to be	
applied to remote surveys as a primary means (refer to Table	applied to remote surveys as a primary means (refer to Table	Wording correction
<b>1</b> -An <b>3</b> .1).	1 An 3.1).	wording correction

# Rules for the survey and construction of steel ships Part B Annex 2.3.1-1 An1 An1.1.1-13

Correction	Present	Note
13 Overshoot angle is the additional heading deviation	13 Overshoot angle is the additional heading deviation	
experienced by the ship after the rudder angle change is	experienced by the ship after the rudder angle change is	
executed the second or third time in the zigzag test. See Fig.	executed the second or third time in the zigzag test. See Fig.	
<u> 4An1.4.5-4.</u>	1.4.5-4.	Reference correction

#### Rules for the survey and construction of steel ships Part B Annex 2.3.1-2 An3 An3.3.1

	Correction	Present	Note
	Measurements are to be carried out under the	Measurements are to be carried out under the	Wording correction
follow	ing conditions specified in the following $-(1)$ to $-(8-)$ .	following conditions specified in the following -1 to -8. The	worung correction
The ac	tual conditions during measurement are to be recorded	actual conditions during measurement are to be recorded on	
on the	noise survey report.	the noise survey report.	
(1)	Measurements are to be taken with the ship in the		
	loaded or ballast condition.		
<u>(2)</u>	Measurements are to be taken at a course that is as		
	straight as possible.		
(3)	Measurements are to be taken at normal service speed		
	and no less than 80% of the maximum continuous		
	rating (MCR). Controllable pitch and Voith-Schneider		
	propellers, if any, are to be in the normal seagoing		
	position. This does not apply to special ship types and		
	ships with special propulsion and power		
	configurations.		
(4)	All machinery, navigation instruments, radio and		
	radar sets, etc., normally in use at normal seagoing		
	condition and levels, including squelch are to operate		
	throughout the measurement period. However,		
	neither energized fog signals nor helicopter		
	operations are to take place during the taking of these		
	measurements.		
(5)	Measurements in spaces containing emergency diesel		
	engine driven generators, fire pumps or other		
	emergency equipment that would normally be run		
	only in emergency, or for test purposes, are to be		
	taken with the equipment operating. Measurements		
	are not intended for determining compliance with		
	maximum noise level limits in Table An4.1, but as a		
	reference for personal protection of seafarers		
	carrying out maintenance, repair and test activities in		
	such spaces.		

(6)	Mechanical ventilation, heating and air-conditioning		
	equipment are to be in normal operation, taking into		
	account that the capacity is to be in accordance with		
	the design conditions. With respect to the		
	requirement, air conditioning vents are to be kept		
	open during the taking of noise measurements on		
	board, unless they are designed to be kept closed in		
	the normal operating condition.		
(7)	In general doors and windows are to be closed With		

- (7) In general, doors and windows are to be closed. With respect to the requirement, closing devices of ventilation grilles/louvres of cabin doors are to be kept open during the taking of noise measurements on board, unless they are designed to be kept closed in the normal operating condition.
- (8) Spaces are to be furnished with all necessary equipment. Measurements without soft furnishings may be taken but no allowance is to be made for their absence. Rechecks or follow-up readings may be taken with soft furnishings included.

1 Measurements are to be taken with the ship in the loaded or ballast condition.

2 Measurements are to be taken at a course that is as straight as possible.

3 Measurements are to be taken at normal service speed and no less than 80% of the maximum continuous rating (*MCR*). Controllable pitch and Voith-Schneider propellers, if any, are to be in the normal seagoing position. This does not apply to special ship types and ships with special propulsion and power configurations.

4 All machinery, navigation instruments, radio and radar sets, etc., normally in use at normal seagoing condition and levels, including squelch are to operate throughout the measurement period. However, neither energized fog signals nor helicopter operations are to take place during the taking of 1 Measurements are to be taken with the ship in the loaded or ballast condition.

2 Measurements are to be taken at a course that is as straight as possible.

3 Measurements are to be taken at normal service speed and no less than 80% of the maximum continuous rating (*MCR*). Controllable pitch and Voith-Schneider propellers, if any, are to be in the normal seagoing position. This does not apply to special ship types and ships with special propulsion and power configurations.

4 All machinery, navigation instruments, radio and radar sets, etc., normally in use at normal seagoing condition and levels, including squelch are to operate throughout the measurement period. However, neither energized fog signals nor helicopter operations are to take place during the taking of these measurements.

5 Measurements in spaces containing emergency diesel engine driven generators, fire pumps or other emergency equipment that would normally be run only in emergency, or for test purposes, are to be taken with the equipment operating. Measurements are not intended for determining compliance with maximum noise level limits in **Table An 4.1**, but as a reference for personal protection of seafarers carrying out maintenance, repair and test activities in such spaces.

6 Mechanical ventilation, heating and air-conditioning equipment are to be in normal operation, taking into account that the capacity is to be in accordance with the design conditions. With respect to the requirement, air conditioning vents are to be kept open during the taking of noise measurements on board, unless they are designed to be kept closed in the normal operating condition.

7 In general, doors and windows are to be closed. With respect to the requirement, closing devices of ventilation grilles/louvres of cabin doors are to be kept open during the taking of noise measurements on board, unless they are designed to be kept closed in the normal operating condition.

8 Spaces are to be furnished with all necessary equipment. Measurements without soft furnishings may be taken but no allowance is to be made for their absence. Rechecks or follow-up readings may be taken with soft furnishings included.

these measurements.

5 Measurements in spaces containing emergency diesel engine driven generators, fire pumps or other emergency equipment that would normally be run only in emergency, or for test purposes, are to be taken with the equipment operating. Measurements are not intended for determining compliance with maximum noise level limits in **Table An 4.1**, but as a reference for personal protection of seafarers carrying out maintenance, repair and test activities in such spaces.

6 Mechanical ventilation, heating and air-conditioning equipment are to be in normal operation, taking into account that the capacity is to be in accordance with the design conditions. With respect to the requirement, air conditioning vents are to be kept open during the taking of noise measurements on board, unless they are designed to be kept closed in the normal operating condition.

7 In general, doors and windows are to be closed. With respect to the requirement, closing devices of ventilation grilles/louvres of cabin doors are to be kept open during the taking of noise measurements on board, unless they are designed to be kept closed in the normal operating condition.

**8** Spaces are to be furnished with all necessary equipment. Measurements without soft furnishings may be taken but no allowance is to be made for their absence. Rechecks or follow-up readings may be taken with soft furnishings included.

## Rules for the survey and construction of steel ships Part B Annex 9.1.3 An1 An1.1.1-1

Correction	Present	Note
1 These procedures apply to the tests, examinations, etc.	1 These procedures apply to the tests, examinations, etc.	
of the computer software required by ships adopting the	of the computer software required by ships adopting the	
Planned Machinery Maintenance Scheme (hereinafter referred	Planned Machinery Maintenance Scheme (hereinafter referred	
	to as "PMS") or the Condition Based Maintenance Scheme	
(hereinafter referred to as "CBM") in accordance with the	(hereinafter referred to as "CBM") in accordance with the	Reference correction
requirements given in 9.1.3-3-or B9.1.4-2-, Part B of the		
Rules- or B9.1.4-2, Part B of the Guidance.	Rules.	

## Rules for the survey and construction of steel ships Part C Chapter 29 29.1.2-3

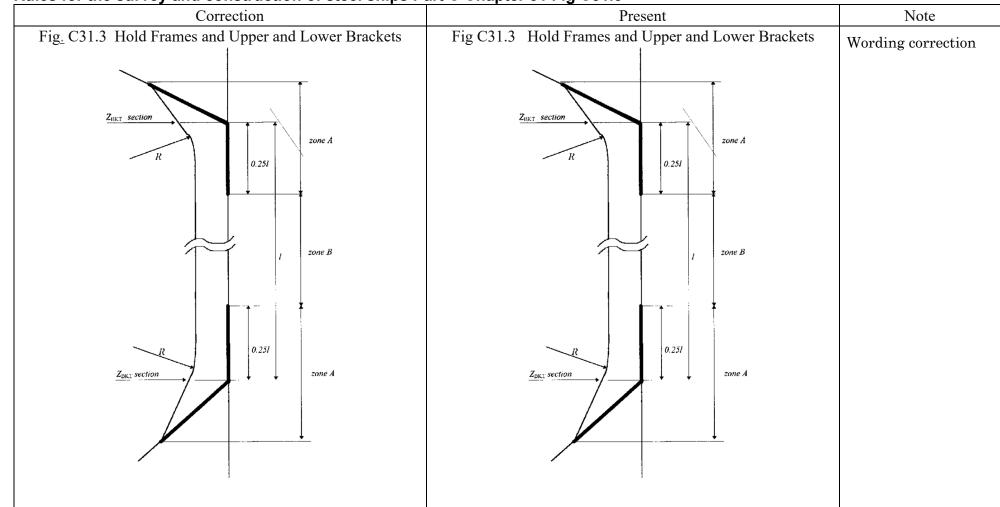
Correction	Present	Note
3 All areas where there are cargo oil pumps and cargo	3 All areas where there are cargo oil pumps and cargo	
oil piping are to be segregated by an air-tight bulkhead from	oil piping are to be segregated by an air-tight bulkhead from	
areas where stoves, boilers, propelling machinery, electric	areas where stoves, boilers, propelling machinery, electric	
installations other than those of explosion-proof type in	installations other than those of explosion-proof type in	
accordance with the requirements in 4.2.4 and 4.3.3, Part H	accordance with the requirements in 4.2.4 and 4.3.3, Part H	Wording correction
or machinery with a source of ignition is normally present.	or machinery with a source of ignition is normally present.	
However, for oil tankers carrying cargo oil having a flash	However, for oil tankers carrying cargo oil having a flash	
point above 60°C, the requirements may be suitably modified.	point above 60°C, the requirements may be suitably modified.	

## Rules for the survey and construction of steel ships Part C Chapter 30 30.4.2-3

Correction	Present	Note
<b>3</b> The section modulus of horizontal stiffeners provided	<b>3</b> The section modulus of horizontal stiffeners provided	
on the side plating of the lower stool is not to be less than the	on the side plating of the lower stool is not to be less than the	<b>TT</b> 7 1:
value obtained from the formula in $30.3.53-5(1)$ , where the	value obtained from the formula in 30.3.5-5(1), where the	Wording correction
coefficient, $C_2$ , is to be reduced by 10%. Where vertical	coefficient, $C_2$ , is to be reduced by 10%. Where vertical	
stiffeners are provided, the section modulus is not to be less	stiffeners are provided, the section modulus is not to be less	
than the value obtained from the formula in 30.3.3-5(2).	than the value obtained from the formula in <b>30.3.3-5</b> (2).	

## Rules for the survey and construction of steel ships Part C Chapter 31 31.1.2-1

Correction	Present	Note
1 Ships with a length $L_1$ of not less than 150 m are to be	1 Ships with a length $L_1$ of not less than 150 m are to be	
categorized into one of the following types and comply with	categorized into one of the following types and comply with	
the requirements of this Chapter. $L_1$ is the distance $(m)$	the requirements of this Chapter. $L_1$ is the distance $(m)$	
measured on the waterline at the scantling draught $d_S$ from	measured on the waterline at the scantling draught $d_S$ from	
the forward side of the stem to the centre of the rudder stock.	the forward side of the stem to the centre of the rudder stock.	
$L_1$ is to be not less than 96% and need not exceed 97% of the	$L_1$ is to be not less than 96% and need not exceed 97% of the	
extreme length on the waterline at the scantling draught $d_s$ . In	extreme length on the waterline at the scantling draught $d_s$ . In	
ships without rudder stocks (e.g. ships fitted with azimuth	ships without rudder stocks (e.g. ships fitted with azimuth	
thrusters), the Rule length $L_1$ is to be taken equal to 97% of	thrusters), the Rule length $L_1$ is to be taken equal to 97% of	
the extreme length on the waterline at the scantling draught $d_S$ .	the extreme length on the waterline at the scantling draught $d_s$ .	
ds is the scantling draught (m) at which the strength	$d_S$ is the scantling draught (m) at which the strength	
requirements for the scantlings of the ship are met and	requirements for the scantlings of the ship are met and	
represents the full load condition; it is to be not less than that	represents the full load condition; it is to be not less than that	
corresponding to the assigned freeboard.	corresponding to the assigned freeboard.	
(1) BC-A: Bulk carriers designed to carry bulk cargoes	(1) BC-A: Bulk carriers designed to carry bulk cargoes	Wording correction
with a bulk cargo density (defined in 31A.1.2-4(6)) of		worung correction
1.0 $t/m^3$ and above with specified holds empty at	1 1 1	
designed maximum load draught (hereinafter referred		
to as "alternately loaded condition") and with all		
ballast tanks empty.	ballast tanks empty.	
(2) BC-B: Bulk carriers designed to carry bulk cargoes	(2) BC-B: Bulk carriers designed to carry bulk cargoes	
with a bulk cargo density of 1.0 $t/m^3$ and above in a	with a bulk cargo density of $1.0 t/m^3$ and above in a	
homogeneously loaded condition at designed		
$\begin{array}{c} maximum \ load \ draught \ with \ all \ ballast \ tanks \ empty. \end{array}$	$\begin{array}{c} \text{maximum load draught with all ballast tanks empty.} \\ \text{(2)}  \text{DG G }  \text{D}  \text{(3)}  ($	
(3) BC-C: Bulk carriers designed to carry bulk cargoes	(3) BC-C: Bulk carriers designed to carry bulk cargoes	
with a bulk cargo density of less than 1.0 $t/m^3$ in a		
homogeneously loaded condition at designed	homogeneously loaded condition at designed	
maximum load draught with all ballast tanks empty.	maximum load draught with all ballast tanks empty.	



# Rules for the survey and construction of steel ships Part C Chapter 31 Fig C31.3

## Rules for the survey and construction of steel ships Part C Chapter 31A 31A3.4

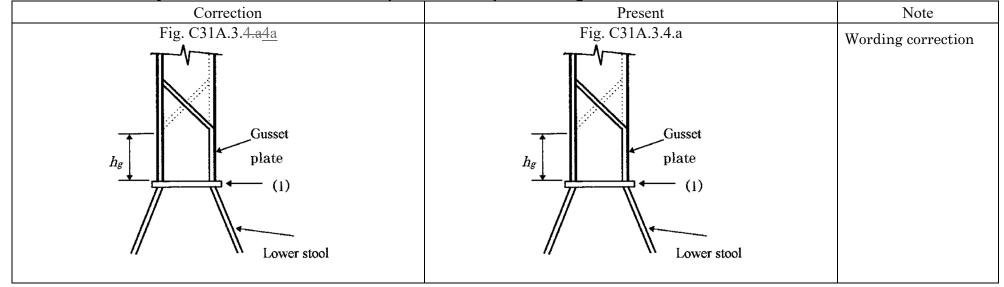
	Correction	Present	Note
	The section modulus at the lower end of the	1 The section modulus at the lower end of the	
-	tion is to be calculated with the following	corrugation is to be calculated with the following	
consider	The width of the compressive corrugation flange to be	<ul><li>considerations.</li><li>(1) The width of the compressive corrugation flange to be</li></ul>	
	used for the calculation of the section modulus is not	(1) The width of the compressive corrugation flange to be used for the calculation of the section modulus is not	
	to exceed the effective width $b_{ef}$ obtained by the	to exceed the effective width $b_{ef}$ obtained by the	
	following.	following.	
	$b_{ef} = C_e a (m)$	$b_{ef} = C_e a (m)$	
	$C_e: \frac{2.25}{\beta} - \frac{1.25}{\beta^2}$ For $\beta > 1.25$ 1.0 For $\beta \le 1.25$	$C_e: \frac{2.25}{\beta} - \frac{1.25}{\beta^2}$ For $\beta > 1.25$ 1.0 For $\beta \le 1.25$	
	1.0 For $\beta \leq 1.25$	1.0 For $\beta \leq 1.25$	
	Where:	Where:	
	$\beta: 10^3 \frac{a}{t_f} \sqrt{\frac{\sigma_F}{E}}$	$eta \colon 10^3 rac{a}{t_f} \sqrt{rac{\sigma_F}{E}}$	
	$t_f$ : Net flange thickness ( <i>mm</i> )	$t_f$ : Net flange thickness (mm)	
	a: Width (m) of corrugation flange (See Fig.	a: Width (m) of corrugation flange (See Fig.	
	C31A.3.2a)	C31A.3.2a)	
	$\sigma_F$ : Yield stress ( <i>N/mm<sup>2</sup></i> ) of the material <i>E</i> : Modulus of elasticity, 2.06×10 <sup>5</sup> ( <i>N/mm<sup>2</sup></i> )	$\sigma_F$ : Yield stress ( <i>N/mm<sup>2</sup></i> ) of the material <i>E</i> : Modulus of elasticity, 2.06×10 <sup>5</sup> ( <i>N/mm<sup>2</sup></i> )	
(2)	Where the webs of corrugation are not supported by	(2) Where the webs of corrugation are not supported by	
	local brackets below the stool top (or below the inner	local brackets below the stool top (or below the inner	
	bottom) in the lower part, the section modulus of the	bottom) in the lower part, the section modulus of the	
	corrugations is to be calculated considering the	corrugations is to be calculated considering the	
	6	•	
	1	1	Wording correction
	increased by the following formula when calculating	increased by the following formula when calculating	
	the section modulus of corrugations (see cross-section	the section modulus of corrugations (see cross-section	
	(1) in Fig. C31A.3.3a and Fig. C31A.3.3b), but it is	(1) in Fig. C31A.3.3a and Fig. C31A.3.3b), but it is	
(3)	corrugations is to be calculated considering the corrugation webs to be 30% effective. Provided that effective shedder plates as defined in C31A31A.3.5-5 are fitted (see Fig. C31A.3.3a and Fig. C31A.3.3b), the area of flange plates may be increased by the following formula when calculating the section modulus of corrugations (see cross-section	<ul> <li>corrugations is to be calculated considering the corrugation webs to be 30% effective.</li> <li>(3) Provided that effective shedder plates as defined in C31A.3.5-5 are fitted (see Fig. C31A.3.3a and Fig. C31A.3.3b), the area of flange plates may be increased by the following formula when calculating the section modulus of corrugations (see cross-section</li> </ul>	Wording correction

	not to be greater than $2.5at_f$ .		not to be greater than $2.5at_f$ .	
	$2.5a\sqrt{t_f t_{sh}} (cm^2)$		$2.5a\sqrt{t_f t_{sh}} \ (cm^2)$	
	Where:		Where:	
	$\alpha$ : Width ( <i>m</i> ) of corrugation flange (See Fig.		a: Width (m) of corrugation flange (See Fig.	
	C31A.3.2a)		C31A.3.2a)	
	$t_{sh}$ : Net shedder plate thickness ( <i>mm</i> )		$t_{sh}$ : Net shedder plate thickness ( <i>mm</i> )	
	$t_f$ : Net corrugation flange thickness ( <i>mm</i> )		$t_f$ : Net corrugation flange thickness ( <i>mm</i> )	
(4)	Provided that effective gusset plates as defined in	(4)	Provided that effective gusset plates as defined in	
	31A.3.5-6 are fitted (see Fig. C31A.3.4a and Fig.		31A.3.5-6 are fitted (see Fig. C31A.3.4a and Fig.	
	C31A.3.4b), the area of flange plates may be		C31A.3.4b), the area of flange plates may be	
	increased by the following formula when calculating		increased by the following formula when calculating	
	the section modulus of corrugations (see cross-section		the section modulus of corrugations (see cross-section	
	(1) in Fig. C31A.3.4a and Fig. C31A.3.4b).		(1) in Fig. C31A.3.4a and Fig. C31A.3.4b).	
	$7h_g t_f (cm^2)$		$7h_g t_f (cm^2)$	
	Where:		Where:	
	$h_g$ : Height (m) of gusset plate, but not to be greater		$h_g$ : Height (m) of gusset plate, but not to be greater	
	than $10S_{qu}/7$ (See Fig. C31A.3.4a and Fig.		than $10S_{qu}/7$ (See Fig. C31A.3.4a and Fig.	
	C31A.3.4b)		C31A.3.4b)	
	$S_{gu}$ : Width ( <i>m</i> ) of gusset plate		$S_{gu}$ : Width ( <i>m</i> ) of gusset plate	
	$t_f$ : Net flange thickness ( <i>mm</i> )		$t_f$ : Net flange thickness ( <i>mm</i> )	
(5)	If the corrugation webs are welded to sloping stool top	(5)	If the corrugation webs are welded to sloping stool top	
	plates which have an angle of not less than 45° with		plates which have an angle of not less than 45° with	
	the horizontal plane, the section modulus of the		the horizontal plane, the section modulus of the	
	corrugations may be calculated taking the corrugation		corrugations may be calculated taking the corrugation	
	webs as fully effective. For angles less than 45°, the		webs as fully effective. For angles less than $45^{\circ}$ , the	
	effectiveness of the web may be obtained by linear		effectiveness of the web may be obtained by linear	
	interpolation between 30% (for 0°) and 100% (for $45^{\circ}$ ) (See Fig. C31A 3.4b)		interpolation between 30% (for $0^{\circ}$ ) and 100% (for $45^{\circ}$ ) (See Fig. C31A 3.4b)	
	45°). (See Fig. C31A.3.4b) Where effective gusset plates are fitted, the area of		45°). (See Fig. C31A.3.4b) Where effective gusset plates are fitted, the area of	
	flange plates may be increased as specified in (4)		flange plates may be increased as specified in (4)	
	above when calculating the section modulus of		above when calculating the section modulus of	
	corrugations. This is not applicable if only shedder		corrugations. This is not applicable if only shedder	

Editorial Correction for Technical Rules and Guidance

plates are litted.	plates are fitted.	plates are fitted.	
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## Rules for the survey and construction of steel ships Part C Chapter 31A Fig. C31A.3.4a



## Rules for the survey and construction of steel ships Part C Chapter 31B 31B.3.4-2

Correction	Present	Note
2 Provided that effective gusset plates or shedder plates as defined in 31B.3.5-4, and 31B.3.5-5 are fitted (see Fig. C31A.3.4a and Fig. C31A.3.4b), the section modulus of corrugations at the lower end $Z_{le}$ is to be not greater than $Z'_{le}$ obtained from the following formula:	2 Provided that effective gusset plates or shedder plates as defined in 31B.3.5-4, and 31B.3.5-5 are fitted (see Fig. C31A.3.4a and C31A.3.4b), the section modulus of corrugations at the lower end $Z_{le}$ is to be not greater than $Z'_{le}$ obtained from the following formula:	Wording correction
$Z'_{le} = Z_g + 10^3 \times \frac{Qh_g - 0.5h_g^2 s_1 p_g}{\sigma_a} (cm^3)$	$Z'_{le} = Z_g + 10^3 \times \frac{Qh_g - 0.5h_g^2 s_1 p_g}{\sigma_a} (cm^3)$	
$Z_g$ : Section modulus ( <i>cm</i> <sup>3</sup> ) of corrugation according to -3. in way of the upper end of shedder plates or gusset plates	$Z_g$ : Section modulus ( $cm^3$ ) of corrugation according to -3. in way of the upper end of shedder plates or gusset plates	
<i>Q</i> : Shear force ( <i>kN</i> ) as given in <b>31B.3.3-2</b> $h_g$ : Height ( <i>m</i> ) of shedder plates or gusset plates (See	<i>Q</i> : Shear force ( $kN$ ) as given in <b>31B.3.3-2</b> $h_g$ : Height ( $m$ ) of shedder plates or gusset plates (See	
Fig. C31A.3.3a, <u>Fig.</u> C31A.3.3b, <u>Fig.</u> C31A.3.4a and <u>Fig.</u> C31A.3.4b)	Fig. C31A.3.3a, C31A.3.3b, C31A.3.4a and C31A.3.4b)	
s <sub>1</sub> : As given in <b>31B.3.2-3</b> $p_g$ : Resultant pressure ( $kN/m^2$ ) as defined in <b>31B.3.2-</b> 6, calculated in way of the shedder plates or	<ul> <li>s<sub>1</sub>: As given in <b>31B.3.2-3</b></li> <li>p<sub>g</sub>: Resultant pressure (kN/m<sup>2</sup>) as defined in <b>31B.3.2-</b></li> <li>6, calculated in way of the shedder plates or</li> </ul>	
gusset plates. $\sigma_a$ : Yield stress of the material ( <i>N/mm<sup>2</sup></i> )	gusset plates. $\sigma_a$ : Yield stress of the material ( <i>N/mm<sup>2</sup></i> )	

## Rules for the survey and construction of steel ships Part C Chapter 31B 31B.4.4-1

Correction	Present	Note
1 Allowable hold loading weight W in the foremost hold is to be calculated by the following formulae, but not to exceed the maximum designed hold loading weight in intact condition:	1 Allowable hold loading weight W in the foremost hold is to be calculated by the following formulae, but not to exceed the maximum designed hold loading weight in intact condition:	Wording correction
$W = \rho_c V \frac{1}{F}(t)$	$W = \rho_c V \frac{1}{F}(t)$	
Where: F = 1.05 in general F = 1.0 for steel mill products $\rho_c$ : Bulk cargo density $(t/m^3)$ ; for steel mill products, is taken as density of steel $V$ : Volume $(m^3)$ occupied by cargo when levelled out at height $h_1$ $h_1$ : As given by the following	Where: F = 1.05 in general F = 1.0 for steel mill products $\rho_c$ : Bulk cargo density $(t/m^3)$ ; for steel mill products, is taken as density of steel $V$ : Volume $(m^3)$ occupied by cargo when levelled out at height $h_1$ $h_1$ : As given by the following	
$h_1 = \frac{X}{\rho_c g} (m)$	$h_1 = \frac{X}{\rho_c g} (m)$	
Where: X: The lesser of the following $X_1$ and $X_2$ , however, it may be taken as $X_1$ using perm = 0 for steel mill products: $X_1 = \frac{Z + \rho g(E - h_f)}{1 + \frac{\rho}{\rho_c} (perm - 1)} (kN/m^2)$	Where: X: The lesser of the following $X_1$ and $X_2$ , however, it may be taken as $X_1$ using perm = 0 for steel mill products: $X_1 = \frac{Z + \rho g(E - h_f)}{1 + \frac{\rho}{\rho_c} (perm - 1)} (kN/m^2)$	
$X_2 = Z + \rho g(E - h_f perm) \ (kN/m^2)$	$X_2 = Z + \rho g(E - h_f perm) \ (kN/m^2)$	
Where: $\rho$ : Sea water density; 1.025 ( $t/m^3$ ) g: Acceleration due to gravity; 9.81 $(m/s^2)$ $E: d_f - 0.1D (m)$ $d_f$ : As specified in <b>31B.4.2</b>	Where: $\rho$ : Sea water density; 1.025 ( $t/m^3$ ) g: Acceleration due to gravity; 9.81 $(m/s^2)$ $E$ : $d_f - 0.1D$ ( $m$ ) $d_f$ : As specified in <b>31B.4.2</b>	

$h_f$ : As specified in <b>31B.4.2</b>	
perm : Permeability of cargo as	
specified in 31A.1.2-1(2(7) is to be	
taken as 0 for steel mill products.	
Z: The lesser of $Z_1$ and $Z_2$ given by the	
following:	
e	
$Z_1 = \frac{C_h}{A_{DB,h}} \left( kN/m^2 \right)$	
$Z_2 = \frac{C_e}{A_{DB,e}} \left( kN/m^2 \right)$	
$C_h, C_e$ : As specified in <b>31B.4.3</b>	
$A_{DB,h}, A_{DB,e}$ : As given by the	
following:	
e	
$A_{DB,h} = \sum_{i=1}^{n} S_i \cdot B_{DB,i} (m^2)$	
$A_{DB,e} = \sum_{i=1}^{n} S_{i} \cdot (B_{DB} - S_{l}) (m^{2})$	
<i>n</i> : Numbers of floors between	
stools (or transverse	
bulkheads, if no stool fitted)	
$S_i$ : Space (m) of <i>i</i> -th floor	
$B_{DB,i}: B_{DB} - S_l$ (m), for floors	
whose shear strength is	
calculated by $S_{f1}$ in <b>31B.4.3</b> -	
5.	
$B_{DB,i}$ : $B_{DB,h}$ (m), for floors whose	
shear strength is calculated by	
$S_{f2}$ in 31B.4.3-5.	
$B_{DB}$ : Breadth (m) of double	
bottom between hoppers (See	
Fig. C31A.4.2)	
$B_{DB,h}$ : Distance ( <i>m</i> ) between the two	
considered openings (See Fig.	
considered openings (see Fig.	

$h_f$ : As specified in <b>31B.4.2</b>	
perm : Permeability of cargo as	
specified in 31A.1.2-1(2) is to be	
taken as 0 for steel mill products.	
<i>Z</i> : The lesser of $Z_1$ and $Z_2$ given by the	
following:	
$Z_1 = \frac{C_h}{A_{DB,h}} \left( kN/m^2 \right)$	
$Z_2 = \frac{C_e}{A_{DB,e}} \left( kN/m^2 \right)$	
$C_h, C_e$ : As specified in <b>31B.4.3</b>	
$A_{DB,h}, A_{DB,e}$ : As given by the	
following:	
$\sum_{n=1}^{n} C D (2)$	
$A_{DB,h} = \sum_{i=1}^{n} S_i \cdot B_{DB,i} (m^2)$	
$A_{DB,e} = \sum_{i=1}^{n} S_{i} \cdot (B_{DB} - S_{l}) (m^{2})$	
<i>n</i> : Numbers of floors between	
stools (or transverse	
bulkheads, if no stool fitted)	
$S_i$ : Space ( <i>m</i> ) of <i>i</i> -th floor	
$B_{DB,i}$ : $B_{DB} - S_l$ ( <i>m</i> ), for floors	
whose shear strength is	
calculated by $S_{f1}$ in 31B.4.3-	
5.	
$B_{DB,i}$ : $B_{DB,h}$ ( <i>m</i> ), for floors whose	
shear strength is calculated by	
$S_{f2}$ in <b>31B.4.3-5.</b>	
$B_{DB}$ : Breadth (m) of double	
bottom between hoppers (See	
Fig. C31A.4.2)	
$B_{DB,h}$ : Distance (m) between the two	
considered openings (See Fig.	

C31A.4.2)	C31A.4.2)	
$S_l$ : Spacing (m) of double bottom	$S_l$ : Spacing (m) of double bottom	
longitudinals adjacent to hoppers	longitudinals adjacent to hoppers	

# Rules for the survey and construction of steel ships Part C Part 1 Annex 1.1 An1 An1.3.1-2

Correction	Present	Note
1 Reduction of scantlings of members and Equipment of	1 Reduction of scantlings of members and Equipment of	Wording correction
ships to be classed for Coasting Service	ships to be classed for Coasting Service	to oralling correction
((1) to (9) are omitted.)	((1)  to  (9)  are omitted.)	
2 Reduction of scantlings of members and equipment of	2 Reduction of scantlings of members and equipment of	
ships to be classed for Smooth Water Service	ships to be classed for Smooth Water Service	
((1)  to  (5)  are omitted.)	((1)  to  (5)  are omitted.)	
(6) Equipment is to be accordance with the requirements	(6) Equipment is to be accordance with the requirements	
in -1(3) and (4). However, the equipment letter in	in -1(3) and (4). However, the equipment letter in	
Table CS23.1, Part CS may be downgraded one rank	Table CS23.1, Part CS may be downgraded one rank	
from the requirements in 23.1.2, Part CS.	from the requirements in 23.1.2.	
((7)  to  (11)  are omitted.)	((7)  to  (11)  are omitted.)	
(-3 to -7 are omitted.)	(-3 to -7 are omitted.)	

# Rules for the survey and construction of steel ships Part C Part 1 Chapter 2 2.2.1.4-1

Correction	Present	Note
1 For ships in the following (1) to (4) to satisfy the	1 For ships in the following (1) to (4) to satisfy the	Wording correction
applicable damage stability requirements, watertight hold	applicable damage stability requirements, watertight hold	
bulkheads are to be fitted at reasonable intervals, in addition	bulkheads are to be fitted at reasonable intervals, in addition	
to the watertight bulkheads specified in 2.2.1.1 to 2.2.1.3: to the watertight bulkheads specified in 2.2.1.1 to 2.2.1.3:		
(1) Ships complying with the requirements in 2.3	(1) Ships complying with the requirements in 2.3	
(including ships specified in 2.3.1.1(1) to (3))	(including ships specified in $2.3.1.1(1)$ to $(3)$ )	
(2) Tankers in compliance with the requirements of <b>3.2.2</b> ,	(2) Tankers in compliance with the requirements of 3.2.2,	
Part 3 of the RULES FOR MARINE	Part 3 of the RULES FOR MARINE	
POLLUTION PREVENTION SYSTEMS Rules	POLLUTION PREVENTION SYSTEMS	
for Marine Pollution Prevention Systems		
(3) Ships carrying liquefied gases in bulk or ships	(3) Ships carrying liquefied gases in bulk or ships	
carrying dangerous chemicals in bulk	carrying dangerous chemicals in bulk	
(4) Ships in compliance with the requirements in An2.1,	(4) Ships in compliance with the requirements in An2.1,	
Part 2-2, Annex 1.1 "ADDITIONAL	Part 2-2, Annex 1.1 "ADDITIONAL	
REQUIREMENTS FOR BULK CARRIERS	<b>REQUIREMENTS FOR BULK CARRIERS</b>	
UNDER SOLAS CHAPTER XII" Annex 1.1, Part	<b>UNDER SOLAS CHAPTER XII"</b>	
2-2 "Additional Requirements for Bulk Carriers		
under SOLAS Chapter XII"		

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# Rules for the survey and construction of steel ships Part C Part 1 Chapter 2 2.2.1.4-1

Correction			Present			Note		
Table 2.2	2.1-1	Number of Watertight Bulkheads	]	Table 2.	2.1-1	Number of Watertight Bulkheads	W	ording correction
Lc (n	n)	Total number of watertight bulkheads		Lc (i	m)	Total number of watertight bulkheads		orallig correction
not	less			not	less			
less	than			less	than			
than				than				
90	102	5		90	102	5		
102	123	6		102	123	6		
123	143	7		123	143	7		
143	165	8		143	165	8		
165	186	9		165	186	9		
186	200	The number of bulkheads arranged in accordance		186	200	The number of bulkheads arranged in accordance		
		with Notes (1) and (2)				with Notes (1) and (2)		
200		The number of bulkheads arranged in accordance		200		The number of bulkheads arranged in accordance		
<b>QT</b>		with Note (2)				with Note (2)		
(Notes)	T			(Notes)	701			
(1)		e ship has sufficient transverse strength of the hull.		(1)		e ship has sufficient transverse strength of the hull.		
(2)		e final waterline does not exceed the upper surface of		(2)		e final waterline does not exceed the upper surface of		
		bulkhead deck at the side of the ship even after any npartment, except the engine room, has been flooded				bulkhead deck at the side of the ship even after any npartment, except the engine room, has been flooded		
		der the load condition corresponding to the summer				er the load condition corresponding to the summer		
		d water line. The permeability used in flooding				d water line. The permeability used in flooding		
		culations is to be in accordance with Tables 2.2.1-2 or				culations is to be in accordance with Table 2.2.1-2 or		
		.1-3.				1-3.		
				I		1.0.		

## Rules for the survey and construction of steel ships Part C Part 1 Chapter 2 2.3.2.1-12

Correction	Present	Note
<b>12</b> In setting the trim and $G_0M$ used to calculate the	<b>12</b> In setting the trim and $G_0M$ used to calculate the	Wording correction
subdivision index, reference is also to be made to 1.3.10-11	subdivision index, reference is also to be made to 1.3.10-11	thorating correction
and -12, Annex U1.2.1 "GUIDANCE FOR STABILITY	and -12, Annex U1.2.1 "GUIDANCE FOR STABILITY	
INFORMATION FOR MASTER" "Guidance for	INFORMATION FOR MASTER", Part U of the	
Stability Information for Master", Part U of the Guidance.	Guidance.	

## Rules for the survey and construction of steel ships Part C Part 1 Chapter 3 3.2.2.1

Correction	Present	Note
1 The steels used for hull structures are to be of the	1 The steels used for hull structures are to be of the	Wording correction
grades provided in Part K in accordance with the	grades provided in Part K in accordance with the	
requirements given in Tables 3.2.2-1 and 3.2.2-2. In applying	requirements given in Table 3.2.2-1 and 3.2.2-2. In applying	
these requirements <i>KB</i> , <i>KD</i> or <i>KE</i> may be substituted for <i>KA</i> ;	these requirements <i>KB</i> , <i>KD</i> or <i>KE</i> may be substituted for <i>KA</i> ;	
<i>KD</i> or <i>KE</i> for <i>KB</i> ; <i>KE</i> for <i>KD</i> ; <i>KD</i> 32, <i>KE</i> 32 or <i>KF</i> 32 for <i>KA</i> 32;	<i>KD</i> or <i>KE</i> for <i>KB</i> ; <i>KE</i> for <i>KD</i> ; <i>KD</i> 32, <i>KE</i> 32 or <i>KF</i> 32 for <i>KA</i> 32;	
<i>KE32</i> or <i>KF32</i> for <i>KD32</i> ; <i>KF32</i> for <i>KE32</i> ; <i>KD36</i> , <i>KE36</i> or	KE32 or KF32 for KD32; KF32 for KE32; KD36, KE36 or	
KF36 for KA36; KE36 or KF36 for KD36; and KF36 for	KF36 for KA36; KE36 or KF36 for KD36; and KF36 for	
<i>KE</i> 36; <i>KD</i> 40, <i>KE</i> 40 or <i>KF</i> 40 for <i>KA</i> 40; <i>KE</i> 40 or <i>KF</i> 40 for	KE36; KD40, KE40 or KF40 for KA40; KE40 or KF40 for	
KD40; KF40 for KE40, respectively.	<i>KD</i> 40; <i>KF</i> 40 for <i>KE</i> 40, respectively.	
(-2 and -7 are omitted.)	(-2 and -7 are omitted.)	
8 Where steel to be used has properties other than	8 Where steel to be used has properties other than	
specified in Tables 3.2.2-1 or 3.2.2-2, the application of those	specified in Table 3.2.2-1 or 3.2.2-2, the application of those	
steels is to be specially considered based on their specification	steels is to be specially considered based on their specification	
and properties which are to be submitted to the Society for	and properties which are to be submitted to the Society for	
approval.	approval.	

# Rules for the survey and construction of steel ships Part C Part 1 Chapter 3 3.3.5.2-2

Correction	Note	
<b>1</b> Paints containing greater than 10 % aluminium by weight in the dry film are not to be used in hazardous areas	<b>1</b> Paints containing greater than 10 % aluminium by weight in the dry film are not to be used in hazardous areas	Wording correction
defined in 4.2.3-1 or -2, Part H in tankers and ships carrying	defined in 4.2.3-1 or -2, Part H in tankers and ships carrying	
dangerous chemicals in bulk intended to carry crude oil and	dangerous chemicals in bulk intended to carry crude oil and	
petroleum products having a flash point not exceeding 60 °C	petroleum products having a flash point not exceeding 60 °C	
and a Reid vapour pressure below atmospheric pressure or	and a Reid vapour pressure below atmospheric pressure or	
other liquid cargoes having similar fire hazards.	other liquid cargoes having similar fire hazards.	
2 Cargo holds of bulk carriers are to comply with the	2 Cargo holds of bulk carriers are to comply with the	
following (1) and (2):	following (1) and (2):	
(1) Where ships are subject to the requirements of <b>Part</b>	(1) Where ships are subject to the requirements of <b>Part</b>	
2-2, structural members, hatch coamings and hatch	2-2, structural members, hatch coamings and hatch	
covers in cargo holds are to have an efficient	covers in cargo holds are to have an efficient	
protective coating (epoxy coating or equivalent)	protective coating (epoxy coating or equivalent)	
applied in accordance with the manufacturer's	applied in accordance with the manufacturer's	
recommendation within the range indicated below $(Sac Fig. (23.2.5.1))$ in the selection of the section	recommendation within the range indicated below $(S_{22}, F_{22}, C_{22}, F_{22}, F_{22})$ In the selection of the section	
(See Fig. $\sub{3.3.5-1}$ ). In the selection of the coating, due consideration is to be given by the owner to cargo	( <i>See</i> Fig. C3.3.5-1). In the selection of the coating, due consideration is to be given by the owner to cargo	
conditions expected in service.	conditions expected in service.	
(a) All internal surfaces of cargo holds, excluding the	(a) All internal surfaces of cargo holds, excluding the	
flat tank top areas and the sloping plating of the	flat tank top areas and the sloping plating of the	
hopper tanks approximately 300 mm below the	hopper tanks approximately 300 mm below the	
side shell frame and brackets	side shell frame and brackets	
(b) All internal and external surfaces of hatch	(b) All internal and external surfaces of hatch	
coamings and hatch covers	coamings and hatch covers	
(2) Where ships are subject to the requirements of <b>Parts</b>	(2) Where ships are subject to the requirements of <b>Parts</b>	
2-2, 2-3 and 2-4, omission of painting is allowed to	2-2, 2-3 and 2-4, omission of painting is allowed to	
those members such as inner bottom plating, slant	those members such as inner bottom plating, slant	
plating of bilge hopper and slant plate of lower stools	plating of bilge hopper and slant plate of lower stools	
of transverse watertight bulkheads. However,	of transverse watertight bulkheads. However,	
omission of painting is not accepted for areas within	omission of painting is not accepted for areas within	
the extent of painting specified in -2(1) above.	the extent of painting specified in $-2(1)$ above.	

## Rules for the survey and construction of steel ships Part C Part 1 Chapter 3 3.8.3.1-2

Correction	Present	Note
1 A loading computer system is a system, which is either	1 A loading computer system is a system, which is either	Wording correction
analogue or digital, by means of which it can be easily and	analogue or digital, by means of which it can be easily and	
quickly ascertained that, at specified read-out points for the	quickly ascertained that, at specified read-out points for the	
ship, relevant operational limitations, such as the still water	ship, relevant operational limitations, such as the still water	
vertical bending moments and shear forces, where applicable,	vertical bending moments and shear forces, where applicable,	
in any load or ballast condition do not exceed the specified	in any load or ballast condition do not exceed the specified	
permissible values. An approved loading instrument cannot	permissible values. An approved loading instrument cannot	
replace an approved loading manual.	replace an approved loading manual.	
2 The loading instrument is to be capable of performing	2 The loading instrument is to be capable of performing	
its intended functions in the installed environment. A loading	its intended functions in the installed environment. A loading	
instrument complying with Part 7, <u>of the Guidance for the</u>	instrument complying with Part 7, "Guidance for the	
Approval and Type Approval of Materials and Equipment	Approval and Type Approval of Materials and Equipment	
for Marine Use <sup>22</sup> is recommended.	for Marine Use" is recommended.	
3 An operation manual for the loading instrument is to	3 An operation manual for the loading instrument is to	
be provided on board the ship. The operation manual and the	be provided on board the ship. The operation manual and the	
instrument input and output are to be prepared in a language	instrument input and output are to be prepared in a language	
understood by the intended users, including the master of the	understood by the intended users, including the master of the	
ship. If this language is not English, a translation into English	ship. If this language is not English, a translation into English	
is to be included.	is to be included.	

# Rules for the survey and construction of steel ships Part C Part 1 Annex 3.2 An2 An2.1.1-1

Correction	Present	Note
1 All <i>FRP</i> products are to be approved by the Society in accordance with Chapter 9, Part 2 of the "GUIDANCE FOR THE APPROVAL AND TYPE APPROVAL OF	accordance with Chapter 9, Part 2 of the "GUIDANCE FOR THE APPROVAL AND TYPE APPROVAL OF	Wording correction
MATERIALS AND EQUIPMENT FOR MARINE USE?Guidance for the Approval and Type Approval ofMaterials and Equipment for Marine Useand are to be		
adequate for the service conditions.		
2 All <i>FRP</i> products are to be resistant to any substances they are expected to be exposed to during service.	2 All <i>FRP</i> products are to be resistant to any substances they are expected to be exposed to during service.	

# Rules for the survey and construction of steel ships Part C Part 1 Annex 3.2 An2 An2.2.1

Correction	Present	Note
<ul> <li>Correction</li> <li>1 The requirements for fire integrity, fire retardance, flame spread and surface flammability as well as smoke generation for <i>FRP</i> products are, in principle, to be in accordance with those given in Table An1. If an <i>FRP</i> product falls under multiple classifications of service in Table An1, it is to satisfy the most stringent requirements.</li> <li>2 Subdivisions other than those specified in Table An1 are to be as deemed appropriate by the Society.</li> <li>3 Where the fire integrity test and the flame spread test have been approved as the approval tests specified in Chapter 9, Part 2 of 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 in accordance with <i>ASTM F</i> 3059-14, notwithstanding Table An1, applicable requirements for <i>FRP</i> products can be in accordance with <i>ASTM F</i> 3059-14.</li> <li>4 Notwithstanding the requirements in -1 and -3 above, <i>FRP</i> products used for safe access to bows specified in 14.13.2 are to be tested and approved by the Society in accordance with the fire integrity test specified in 9.4.2-1(4), Chapter 9, Part 2 of the "GUIDANCE FOR THE APPROVAL AND TYPE APPROVAL OF MATERIALS AND EQUIPMENT FOR MATERIALS AND EQUIPMENT FOR MARINE USE," Guidance for the Approval and Type Approval by the Society in accordance with the fire integrity test specified in 9.4.2-1(4), Chapter 9, Part 2 of 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, the surface flammability test specified in 9.4.2-3(2), the smoke generation test specified in 9.4.2-4(2), and the toxicity test specified in 9.4.2-5(1).</li> <li>5 In case of use in inspection equipment specified in 14.16, <i>FRP</i> products are to be used for ladders, handrails, steps and small platforms because they are not considered to be part of the hu</li></ul>	<ol> <li>The requirements for fire integrity, fire retardance, flame spread and surface flammability as well as smoke generation for <i>FRP</i> products are, in principle, to be in accordance with those given in Table An1. If an <i>FRP</i> product falls under multiple classifications of service in Table An1, it is to satisfy the most stringent requirements.</li> <li>Subdivisions other than those specified in Table An1 are to be as deemed appropriate by the Society.</li> </ol>	Wording correction

<b>6</b> In cases where <i>FRP</i> products are installed in the hazardous areas specified in <b>4.3</b> and <b>4.7</b> , <b>Part H</b> , the risk of electrical charge of the <i>FRP</i> is to be taken into account. In cases where <i>FRP</i> products are installed in cargo tanks, fuel oil tanks, or the areas deemed necessary by the Society, such <i>FRP</i> products are to have no electrostatic properties. Generally, in cases where comb-like gratings of personnel walkways are installed in areas except for those mentioned above, <i>FRP</i> products that have electrostatic properties may be used. Here, "no electrostatic properties" means that the earth resistance of these products at any point is not greater than 1 $M\Omega$ .	<ul> <li>5 In case of use in inspection equipment specified in 14.16, <i>FRP</i> products are to be used for ladders, handrails, steps and small platforms because they are not considered to be part of the hull construction.</li> <li>6 In cases where <i>FRP</i> products are installed in the hazardous areas specified in 4.3 and 4.7, Part H, the risk of electrical charge of the <i>FRP</i> is to be taken into account. In cases where <i>FRP</i> products are installed in cargo tanks, fuel oil tanks, or the areas deemed necessary by the Society, such <i>FRP</i> products are to have no electrostatic properties. Generally, in</li> </ul>	
1 1	tanks, or the areas deemed necessary by the Society, such FRP	
	products that have electrostatic properties may be used. Here, "no electrostatic properties" means that the earth resistance of these products at any point is not greater than $1 M\Omega$ .	

Corre	ction				Present			Note
Table An1         Applicable Requirements for FRP Products					Wording correction			
Location	Service	Fire Integrity	Fire Retardance	Flame Spread and Surface Flammabili ty	Smoke Generation	Toxicity		wording correction
Cargo Pump Rooms	All personnel walkways, catwalks, ladders, platforms, or access areas	L <sub>1</sub>	0	0	_	_		
Cargo Holds	Walkways or areas that may be used for escape, or access for firefighting, emergency operation, or rescue	<i>V</i> 1	0	_	_	_		
Curgo Holus	Walkways, catwalks, ladders, platforms, or access areas other than those described above	_	0	_	_	_		
Cargo Tanks	All personnel walkways, catwalks, ladders, platforms, or access areas	See Note (3)	0	_	_	_		
Fuel Oil Tanks	All personnel walkways, catwalks, ladders, platorms, or access areas	See Note (3)	0	_	_	_		
Ballast Water Tanks	All personnel walkways, catwalks, ladders, platforms, or access areas	See Note (4)	0	_	_	_		
Cofferdams, void spaces, double bottoms, pipe tunnels, etc.	All personnel walkways, catwalks, ladders, platforms, or access areas	See Note (4)	0	_	_	_		
Accommodation, service spaces and control rooms	1	$L_1$	0	0	0	—		
Lifeboat embarkation or safe refuge stations in open deck areas	All personnel walkways, catwalks, ladders, platforms, or access areas	L <sub>2</sub>	0	_	_	_		
Open decks or semi- enclosed areas	Walkways or areas which may be used for escape or access for firefighting, emergency operation, or rescue <sup>(6)</sup>	L3 <sup>(5)</sup>	0	_	_	_		
enciosed areas	Walkways, catwalks, ladders, platforms, or access areas other than those described above	_	0	_	_	_		

(Note	s)
	1) Symbols
	O: The fire retardance test, flame spread and surface flammability test, smoke generation test and toxicity test specified
	in 9.4.2, Chapter 9, Part 2 of 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 are to be satisfied.
	-: Not applicable
	2) Abbreviations
	L1: L1 is the abbreviation for Fire Integrity Level 1. FRP products complying with Fire Integrity Level 1 are those specified
	in 9.1.2(4), Chapter 9, Part 2 of 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.
	L2: L2 is the abbreviation for Fire Integrity Level 2. FRP products complying with Fire Integrity Level 2 are those specified
	in 9.1.2(3), Chapter 9, Part 2 of the "GUIDANCE FOR THE APPROVAL AND TYPE APPROVAL OF
	<b>MATERIALS AND EQUIPMENT FOR MARINE USE</b> " Guidance for the Approval and Type Approval
	of Materials and Equipment for Marine Use.
	L <sub>3</sub> : L <sub>3</sub> is the abbreviation for Fire Integrity Level 3. FRP products complying with Fire Integrity Level 3 are those specified
	in 9.1.2(2), Chapter 9, Part 2 of the "GUIDANCE FOR THE APPROVAL AND TYPE APPROVAL OF
	<b>MATERIALS AND EQUIPMENT FOR MARINE USE</b> " Guidance for the Approval and Type Approval
	of Materials and Equipment for Marine Use".
	3) Fire integrity is not required in principle. However, if these spaces are normally entered and exited when underway, FRP
	of $L_1$ is to be applied.
	4) Fire integrity is not required in principle. However, if these spaces are normally entered and exited when underway, FRP
	of $L_3$ is to be applied.
	5) Vessels fitted with fixed foam fire-extinguishing systems and fixed dry chemical powder type extinguishing systems on
	deck require $FRP$ of $L_1$ integrity for foam system operational areas and access routes.
	6) Excluding the safe access to the bow specified in 14.13.2.

# Rules for the survey and construction of steel ships Part C Part 1 Annex 3.8 An1 An1.2.2-1

Correction			Present	Note
1 The following precautions regarding loading are to be		1 The following precautions regarding loading are to be		Reference correction
described in the loading manual:		describ	bed in the loading manual:	
(1)	For the standard loading conditions, the results of the	(1)	For the standard loading conditions, the results of the	
	general hull strength analysis, including the primary		general hull strength analysis, including the primary	
	supporting structure strength and local strength and		supporting structure strength and local strength and	
	the operational precautions based on the analysis		the operational precautions based on the analysis	
	results.		results.	
(2)	For loading conditions different from the standard	(2)	For loading conditions different from the standard	
	loading conditions, precautions regarding the		loading conditions, precautions regarding the	
	prevention of excessive stress on the hull		prevention of excessive stress on the hull	
(3)	Precautions regarding weight shifting involving the	(3)	Precautions regarding weight shifting involving the	
	transfer of ballast water and cargo under the standard		transfer of ballast water and cargo under the standard	
	loading conditions or any other loading conditions		loading conditions or any other loading conditions	
(4)	Precautions related to the filling level of ballast tanks	(4)	Precautions related to the filling level of ballast tanks	
	as specified in An <del>1.2.1-21.1.2-2</del> , Annex 4.3		as specified in An1.2.1-2, Annex 4.3 "Guideline for	
	"Guideline for the Assessment of Longitudinal		the Assessment of Longitudinal Strength Relating	
	Strength Relating to Ballasting/Deballasting".	_	to Ballasting/Deballasting".	
2	Although the specific content may differ depending on	2	Although the specific content may differ depending on	
	p, a loading manual is generally to be prepared while		p, a loading manual is generally to be prepared while	
	ly noting the following points:		ly noting the following points:	
(1)	The minimum bow draught required for the structural	(1)	The minimum bow draught required for the structural	
	strength of the strengthened bottom forward	$\langle \mathbf{a} \rangle$	strength of the strengthened bottom forward	
(2)	Limitation to the apparent specific gravities of	(2)	Limitation to the apparent specific gravities of	
(2)	cargoes in cargo holds and the loading heights therein	( <b>2</b> )	cargoes in cargo holds and the loading heights therein	
(3)	Acceptability of alternate loading and two-port	(3)	Acceptability of alternate loading and two-port	
(A)	loading, etc.	(A)	loading, etc.	
(4)	Limitation to liquid levels in tanks	(4) (5)	Limitation to liquid levels in tanks	
(5)	Limitation to loading with respect to local strength and primary supporting structure strength (e.g.	(5)	Limitation to loading with respect to local strength and primary supporting structure strength (e.g.	
	limitations on the maximum design cargo weight on		limitations on the maximum design cargo weight on	
	deck or hatch covers)		deck or hatch covers)	
(6)	Limitation to loading with respect to longitudinal hull	(6)	Limitation to loading with respect to longitudinal hull	
(0)	Elimation to fouring with respect to fongitudinal hun	(0)	Emiliation to foading with respect to fongitualitat hulf	

### Editorial Correction for Technical Rules and Guidance

<ul><li>strength</li><li>(7) Precautions for ballasting/deballasting, dry-docking and the like</li></ul>	<ul><li>strength</li><li>(7) Precautions for ballasting/deballasting, dry-docking and the like</li></ul>	
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# Rules for the survey and construction of steel ships Part C Part 1 Chapter 5 5.1.2.1-1

Correction	Present	Note
1 Longitudinal strength of ships are to be assessed in	1 Longitudinal strength of ships are to be assessed in	Wording correction
accordance with the requirements specified in this Chapter.	accordance with the requirements specified in this Chapter.	0
However, container carriers subject to Part 2-1 are to be	However, container carriers subject to Part 2-1 are to be	
assessed in accordance with the requirements in Part 2-1,	assessed in accordance with the requirements in Part 2-1,	
Chapter 5 Chapter 5, Part 2-1.	Chapter 5.	
2 Ships to which direct application of the requirements	2 Ships to which direct application of the requirements	
in this Chapter is deemed unreasonable and the handling of	in this Chapter is deemed unreasonable and the handling of	
such ships are to be in accordance with (1) and (2) below:	such ships are to be in accordance with (1) and (2) below:	
(1) For ships whose $C_{B1}$ value is less than 0.65, the	(1) For ships whose $C_{B1}$ value is less than 0.65, the	
permissible vertical bending stress $\sigma_{perm}$ specified in	permissible vertical bending stress $\sigma_{perm}$ specified in	
<b>5.2.1.2</b> is to be modified by division by the coefficient	<b>5.2.1.2</b> is to be modified by division by the coefficient	
determined by (a) and (b) below according to the $C_{B1}$	determined by (a) and (b) below according to the $C_{B1}$	
value:	value:	
(a) Where $C_{B1} \le 0.60$ : 1.05	(a) Where $C_{B1} \le 0.60$ : 1.05	
(b) Where $0.60 < C_{B1} < 0.65$ : $1.65 - C_{B1}$	(b) Where $0.60 < C_{B1} < 0.65$ : $1.65 - C_{B1}$	
(2) In addition to (1), ships of special form or	(2) In addition to (1), ships of special form or	
construction, ships with special loading requirements,	construction, ships with special loading requirements,	
etc. are to be in accordance with the discretion of the	etc. are to be in accordance with the discretion of the	
Society.	Society.	

# Rules for the survey and construction of steel ships Part C Part 1 Annex 5.3 An3 An3.1.1

Correction	Present	Note
The indeterminate shear flow is working around the closed cells and can be considered as a constant value within the same closed cell. The following system of equation for determination of indeterminate shear flows can be developed. In the equations, contour integrations of several parameters around all closed cells are performed.	The indeterminate shear flow is working around the closed cells and can be considered as a constant value within the same closed cell. The following system of equation for determination of indeterminate shear flows can be developed. In the equations, contour integrations of several parameters around all closed cells are performed.	Wording correction
$q_{Ic} \oint_{c} \frac{1}{t} ds - \sum_{m=i}^{Nw} q_{Im} \oint_{c\&m} \frac{1}{t} ds = -\oint_{c} \frac{q_{D}}{t} ds$	$q_{Ic} \oint_{c} \frac{1}{t} ds - \sum_{m=i}^{Nw} q_{Im} \oint_{c\&m} \frac{1}{t} ds = -\oint_{c} \frac{q_{D}}{t} ds$	
<i>Nw</i> : Number of common walls shared by cell <i>c</i> and all other cells.	<i>Nw</i> : Number of common walls shared by cell <i>c</i> and all other cells.	
c, m: Common wall shared by cells $c$ and $m$ .	c, m: Common wall shared by cells $c$ and $m$ .	
$q_{Ic}, q_{Im}$ : Indeterminate shear flow around the closed cell c and m, respectively, in N/mm.	$q_{Ic}, q_{Im}$ : Indeterminate shear flow around the closed cell c and m, respectively, in N/mm.	
Under the assumption of the assembly of line segments	Under the assumption of the assembly of line segments	
shown in Fig. <u>An 1</u> and a constant plate thickness of each line	shown in Fig. 1 and a constant plate thickness of each line	
segment, the above equation can be expressed as follows:	segment, the above equation can be expressed as follows:	
$q_{Ic} \sum_{j=1}^{Nc} (\frac{l}{t})_j - \sum_{m=1}^{Nw} \left\{ q_{Im} \left[ \sum_{j=1}^{Nm} (\frac{l}{t})_j \right]_m \right\} = -\sum_{j=1}^{Nc} \phi_j$	$q_{Ic}\sum_{j=1}^{Nc} (\frac{l}{t})_j - \sum_{m=1}^{Nw} \left\{ q_{Im} \left[ \sum_{j=1}^{Nm} \left( \frac{l}{t} \right)_j \right]_m \right\} = -\sum_{j=1}^{Nc} \phi_j$	
$\phi_j = \left[ -\frac{l^2}{6I_y} (z_k + 2z_i - 3z_n) \times 10^{-3} + \frac{l}{t} q_{Di} \right]_j$	$\phi_j = \left[ -\frac{l^2}{6I_y} (z_k + 2z_i - 3z_n) \times 10^{-3} + \frac{l}{t} q_{Di} \right]_j$	
<i>Nc</i> : Number of line segments in cell <i>c</i> .	<i>Nc</i> : Number of line segments in cell <i>c</i> .	
<i>Nm</i> : Number of line segments on the common wall shared by cells <i>c</i> and <i>m</i> .	<i>Nm</i> : Number of line segments on the common wall shared by cells <i>c</i> and <i>m</i> .	
$q_{Di}$ : Determinate shear flow, in <i>N/mm</i> , calculated according to An2.1.1.	$q_{Di}$ : Determinate shear flow, in <i>N/mm</i> , calculated according to <b>An2.1.1</b> .	
The difference in the directions of running coordinates specified in An2.1.1 is to be considered.	The difference in the directions of running coordinates specified in An2.1.1 is to be considered.	

# Rules for the survey and construction of steel ships Part C Part 1 Chapter 7 7.4.2.1

Correction	Present	Note
For members subject to axial compressive loads, such as pillars or struts, their sectional area is to be not less than that obtained from the following formula:	For members subject to axial compressive loads, such as pillars or struts, their sectional area is to be not less than that obtained from the following formula:	Wording correction
$A_{n50} = C_S \frac{F}{\sigma_{cr}} \times 10 \ (cm^2)$	$A_{n50} = C_S \frac{F}{\sigma_{cr}} \times 10 \ (cm^2)$	
$C_{S}: \text{ Safety factor to be taken as 1.4 However, when struts are placed between longitudinals in double bottom and double side, C_{S} is to be taken as 2.8.F: \text{ Compressive load } (kN) \text{ specified in each requirement. However, the compressive load may be obtained by direct strength analysis.} \sigma_{cr}: \text{Buckling strength of beams and pillars or such members as struts to be taken as follows:} \text{For } \sigma_{E} > \frac{\sigma_{Y}}{2}: \sigma_{cr} = \sigma_{Y} \left(1 - \frac{\sigma_{Y}}{4\sigma_{E}}\right) (N/mm^{2}) \text{For } \sigma_{E} \leq \frac{\sigma_{Y}}{2}: \sigma_{cr} = \sigma_{E} (N/mm^{2}) k: \text{ Minimum radius } (mm) \text{ of gyration of beams and pillars or members such as struts} l: \text{ Distance } (mm)  from the top of the inner bottom plating, deck or any other structure, to which the lower end of pillars, struts, etc., is attached, to the bottom of the beamstiffeners or deck girder supported by the pillars, struts, etc., etc.$	$C_{S}: \text{ Safety factor to be taken as } 1.4 \text{ However, when struts are placed between longitudinals in double bottom and double side, C_{S} is to be taken as 2.8.F: \text{ Compressive load } (kN) \text{ specified in each requirement. However, the compressive load may be obtained by direct strength analysis.} \sigma_{cr}: \text{Buckling strength of beams and pillars or such members as struts to be taken as follows:} \text{For } \sigma_{E} > \frac{\sigma_{Y}}{2}: \sigma_{cr} = \sigma_{Y} \left(1 - \frac{\sigma_{Y}}{4\sigma_{E}}\right) (N/mm^{2}) \text{For } \sigma_{E} \leq \frac{\sigma_{Y}}{2}: \sigma_{cr} = \sigma_{E} (N/mm^{2}) \kappa: \text{ Minimum radius } (mm) \text{ of gyration of beams and pillars or members such as struts} l: \text{ Distance } (mm) \text{ from the top of the inner bottom plating, deck or any other structure, to which the lower end of pillars, struts, etc., is attached, to the bottom of the beam or deck girder supported by the pillars, struts, etc.}$	
$C_{BC}$ : Fixed end effect coefficient as	$C_{BC}$ : Fixed end effect coefficient as	
<ul><li>i) specified in the following i) to iii):</li><li>i) For corrugated bulkheads supported at</li></ul>	<ul><li>specified in the following i) to iii):</li><li>i) For corrugated bulkheads supported at</li></ul>	

	each end with a stool with a width		each end with a stool with a width	
	exceeding 2 times the depth of the		exceeding 2 times the depth of the	
	corrugation		corrugation	
	$C_{BC} = 4$		$C_{BC} = 4$	
ii)	For corrugated bulkheads or cross ties	ii)	For corrugated bulkheads or cross ties	
	supported at one end with a stool with a		supported at one end with a stool with a	
	width exceeding 2 times the depth of the		width exceeding 2 times the depth of the	
	corrugation		corrugation	
	$C_{BC} = 2$		$C_{BC} = 2$	
iii)	Other cases	iii)	Other cases	
	$C_{BC} = 1$		$C_{BC} = 1$	
	-		-	

# Rules for the survey and construction of steel ships Part C Part 1 Chapter 9 9.5.5.1

Correction	Present	Note
The fatigue strength assessment criterion (acceptance	The fatigue strength assessment criterion (acceptance	Wording correction
criterion) is to be as follows:	criterion) is to be as follows:	wording correction
$\eta \cdot D \le 1.0$	$\eta \cdot D \le 1.0$	
D : Fatigue damage obtained from 9.5.4.2	D : Fatigue damage obtained from 9.5.4.2	
$\eta$ : Correction factor of fatigue damage based on	$\eta$ : Correction factor of fatigue damage based on	
fatigue load used in the assessment, as given in	fatigue load used in the assessment, as given in	
<b>€</b> <u>T</u> able 9.5.5-1.	table 9.5.5-1.	

# Rules for the survey and construction of steel ships Part C Part 1 Chapter 10 Table 10.5.2-1

	Corre	ction	•	Present	Note
	Table 10.5	Reference correction			
• •	Type of corrugated Location bulkhead		Supporting structure	2	
Vertically corrugated bulkhead Longitudinal Upper			are to be arranged be thickness that is the arranged beneath on of the corrugated bu the corrugation is bulkhead. ( <i>See</i> Fig.		
			less than 80 % of t	dinal girder or an on-deck longitudinal with a web thickness of not the thickness of the upper part of a corrugated bulkhead is to be a flanges of the corrugated bulkhead.	
		Lower	lower part of a correct corrugated bulkhead part of the corrugate bulkhead and an inr the lower part of the the depth of the corr	ers or side girders) with a thickness that is the same as that of the rugated bulkhead are to be arranged beneath both flanges of the d, or a girder with a thickness that is the same as that of the lower ed bulkhead is to be arranged beneath one flange of the corrugated her bottom longitudinal with a thickness that is the same as that of e corrugated bulkhead and a web depth that is not less than 0.5 times rugation, or a stiffener equivalent thereto, is to be arranged beneath e of the corrugated bulkhead.	
Hoi y	orizontall Transverse	Lower		ness that is the same as that of the lower part of a corrugated bulkhead neath the web of the corrugated bulkhead.	
	rrugated Longitudina lkhead	Upper	U U	with a thickness that is not less than 80 % of the thickness of the rrugated bulkhead is to be arranged above the web of the corrugated	
		Lower		der or side girder) with a thickness that is the same as that of the rugated bulkhead is to be arranged beneath the web of the corrugated	

### Rules for the survey and construction of steel ships Part C Part 1 Chapter 10 10.6.3.5

Correction	Present	Note
The thickness of the floors in the strengthened bottom	The thickness of the floors in the strengthened bottom	Reference correction
forward is to be the value determined in accordance with the	forward is to be the value determined in accordance with the	
following (1) and (2), whichever is greater.	following (1) and (2), whichever is greater.	
(1) Value obtained by the following formula:	(1) Value obtained by the following formula:	
$t_{1} = \frac{1.2KPSb_{1}}{\sigma_{V}(b_{1} - d_{1})} \ (mm)$	$t_{1} = \frac{1.2KPSb_{1}}{\sigma_{V}(b_{1} - d_{1})} \ (mm)$	
$l_1 = \frac{1}{\sigma_Y(b_1 - d_1)} (mm)$	$l_1 = \frac{1}{\sigma_Y(b_1 - d_1)} (mm)$	
P: Slamming impact pressure $(kN/m^2)$ , which is	<i>P</i> : Slamming impact pressure $(kN/m^2)$ , which is	
$P_{SL2B}$ as specified in 4.8.2.2.	$P_{SL2B}$ as specified in 4.8.2.2.	
S: Spacing (m) of floors	S: Spacing (m) of floors	
$b_1$ : Width ( <i>mm</i> ) of floor panel having a width equal	$b_1$ : Width ( <i>mm</i> ) of floor panel having a width equal	
to half of the spacing of the bottom longitudinals	to half of the spacing of the bottom longitudinals	
on each side of the centreline of a bottom	on each side of the centreline of a bottom	
longitudinal. (See Fig. 12.2.5-310.6.3-1)	longitudinal. (See Fig. 12.2.5-3)	
$d_1$ : Width ( <i>mm</i> ) of an opening such as a lightening	$d_1$ : Width ( <i>mm</i> ) of an opening such as a lightening	
hole, slot, etc. $(d_1 = d_2 + d_3)$ of the floor at the	hole, slot, etc. $(d_1 = d_2 + d_3)$ of the floor at the	
depth under consideration. When a doubling	depth under consideration. When a doubling	
plate is applied to the opening, the cross-sectional	plate is applied to the opening, the cross-sectional	
area of the doubling plate may be taken into	area of the doubling plate may be taken into	
account.	account.	
(2) Value obtained by the following formula:	(2) Value obtained by the following formula:	
$t_2 = 1.1 \cdot \sqrt[3]{PSb_2^2} \times 10^{-2}  (mm)$	$t_2 = 1.1 \cdot \sqrt[3]{PSb_2^2} \times 10^{-2}  (mm)$	
<i>P</i> , <i>S</i> : As specified in (1) above.	<i>P</i> , <i>S</i> : As specified in (1) above.	
$b_2$ : Spacing ( <i>mm</i> ) of bottom longitudinals (See Fig.	$b_2$ : Spacing ( <i>mm</i> ) of bottom longitudinals (See Fig.	
10.6.3-1)	10.6.3-1)	

#### Rules for the survey and construction of steel ships Part C Part 1 Chapter 11 11.5.1.2-6

	Correction		Present	Note
6	The connection of a cast steel boss and fabricated stern	6	The connection of a cast steel boss and fabricated stern	Reference correction
frame is to be in accordance with 12.2.3.54.		frame	e is to be in accordance with 12.2.2.5.	

### Rules for the survey and construction of steel ships Part C Part 1 Chapter 11 11.5.2.3-2

Correction	Present	Note
1 The spacing of the frames of the transverse framing	1 The spacing of the frames of the transverse framing	Reference correction
system is to be as deemed appropriate by the Society.	system is to be as deemed appropriate by the Society.	
2 The requirements in $11.2.36.3-2$ are to be referred to	2 The requirements in 11.2.3.3-2 are to be referred to the	
the construction under the bottom deck, which is to have	construction under the bottom deck, which is to have effective	
effective stiffness.	stiffness.	
3 Where the distance between the supporting points of	3 Where the distance between the supporting points of	
the frame measured along the outer face of the frame exceeds	the frame measured along the outer face of the frame exceeds	
2.5 $m$ , the scantlings of the frame are to be increased or	2.5 $m$ , the scantlings of the frame are to be increased or	
additional side stringers, stiffening supporting members, etc.	additional side stringers, stiffening supporting members, etc.	
are to be provided to increase the stiffness of the side shell.	are to be provided to increase the stiffness of the side shell.	

### Rules for the survey and construction of steel ships Part C Part 1 Chapter 13 Table 13.2.7-1.

Correction			Present				Note
Tabl	e €13.2.7-1. Thickn	ess of Side Pla	ating a	and Vertical Web P	lates	_	Wording correction
	Thickness of vertic	al web plates (mm)		Thickness of rud	der plating (mm)		
Type of rudder	Rudder blade without opening	Rudder blade w opening	vith	Rudder blade without opening	Area with opening		
Type $A$ and $B$ rudders	$1.2t_{gr}$	$1.6t_{gr}$		$1.2t_{gr}$	$1.4t_{gr}$		
Type $C$ , $D$ and $E$ rudders	$1.4t_{gr}$	$2.0t_{gr}$		$1.3t_{gr}$	$1.6t_{gr}$		
$t_{gr}$ = thickness of the rude	der plating, in mm, as defin	ed in 13.2.6.1	·				

Correction	Present	Note
TableFig. C13.2.8-1Welded Joint between Rudder	Table C13.2.8-1 Welded Joint between Rudder Stock and	Wording correction
Stock and Coupling Flange	Coupling Flange	there are a second second
$\frac{a}{b} = \frac{1}{3} \cdot o \frac{1}{5}$	$\frac{a}{b} = \frac{1}{3} to \frac{1}{5}$	

## Rules for the survey and construction of steel ships Part C Part 1 Chapter 13 Fig. 13.2.8-1

## Rules for the survey and construction of steel ships Part C Part 1 Chapter 14 14.16.3.4

Correction	Present	Note
1 For oil tankers: cargo oil tanks and water ballast tanks	•	Reference correction
except those specified in -2 and -8 are to be provided with	except those specified in -2 and -8 are to be provided with	
means of access in accordance with the following $(1)$ to $(4)$ .	means of access in accordance with the following $(1)$ to $(4)$ .	
(1) For tanks of which the height is not less than $6 m$ ,	(1) For tanks of which the height is not less than $6 m$ ,	
permanent means of access are to be provided in	permanent means of access are to be provided in	
accordance with (a) to (f). In the application of this	accordance with (a) to (f). In the application of this	
requirements, the requirements of (a) to (c) define	requirements, the requirements of (a) to (c) define	
access to underdeck structures and the requirements	access to underdeck structures and the requirements	
of (d) to (f) define access to vertical structures. These	of (d) to (f) define access to vertical structures. These	
requirements are linked to the presence of underdeck	requirements are linked to the presence of underdeck	
structures and transverse webs on longitudinal	structures and transverse webs on longitudinal	
bulkheads. If there are no underdeck structures (deck	bulkheads. If there are no underdeck structures (deck	
longitudinals and deck transverses) but there are	longitudinals and deck transverses) but there are	
vertical structures in the cargo tank supporting	vertical structures in the cargo tank supporting	
transverse and longitudinal bulkheads (including	transverse and longitudinal bulkheads (including	
brackets supporting deck transverses), in addition to	brackets supporting deck transverses), in addition to	
access in accordance with applicable requirements of	access in accordance with applicable requirements of	
(d) to (f) access in accordance with the requirements	(d) to (f) access in accordance with the requirements	

of (a) to (c) is to be provided for inspection of the upper parts of vertical structure on transverse and longitudinal bulkheads. For example, there is need to provide continuous longitudinal permanent means of access in accordance with the requirements of (b) when the deck longitudinals and deck transverses are fitted on the deck but supporting brackets are fitted under the deck.

- (a) A continuous athwartship permanent means of access is to be arranged at each transverse bulkhead on the stiffened surface, at a minimum of 1.6 m to a maximum of 3 m below the deck head.
- (b) At least one continuous longitudinal permanent means of access is to be provided at each side of the tank. One of these accesses is to be at a minimum of 1.6 m to a maximum of 6 m below the deck head and the other is to be at a minimum of 1.6 m to a maximum of 3 m below the deck head.
- (c) Access between the arrangements specified in (a) and (b) and from the main deck to either (a) or (b) is to be provided.
- (d) A continuous longitudinal permanent means of access integrated into the structural members on the stiffened surface of a longitudinal bulkhead, in alignment, where possible, with horizontal girders of transverse bulkheads is to be provided for access to transverse webs from the upper deck and tank bottom unless permanent fittings are installed at the uppermost platform for use as an alternative means listed in -910, for inspection at intermediate heights. In addition, the following i) and ii) are to be taken into account.

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- i) For water ballast tanks of 5 *m* or more in width, such as on an ore carrier, side shell plating is to be considered in the same way as "longitudinal bulkhead".
- ii) For the application of this -1(1)(d), wire lift platforms or other means which can provide an equal level of safety as permanent means of access specified in -910(2), are assumed as alternative means of access. However, rafting and permanent fittings for rafting are not permitted as alternatives to the continuous longitudinal permanent means of access.
- (e) A transverse permanent means of access on the cross-ties providing access to the tie flaring brackets at both sides of the tank, with access from one of the longitudinal permanent means of access in (d) for ships having cross-ties which are not less than 6 *m* above the tank bottom.
- (f) An alternative means listed in  $-9\underline{10}$  may be provided for small ships with cargo oil tanks less than 17 *m* in height as an alternative to (d).
- (2) For tanks less than 6 *m* in height, an alternative means listed in -910 or portable means may be utilized in lieu of permanent means of access.
- (3) Notwithstanding (1) and (2) above, tanks not containing internal structures need not to be provided with permanent means of access.
- (4) Means of access deemed appropriate by the Society are to be provided for access to under deck structures, transverse webs and cross-ties outside the reach of permanent and/or portable means of access, as required in (1) and (2) above. The means of access generally presumes the use of boats which are to be

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- (f) An alternative means listed in -9 may be provided for small ships with cargo oil tanks less than 17 *m* in height as an alternative to (d).
- (2) For tanks less than 6 *m* in height, an alternative means listed in -9 or portable means may be utilized in lieu of permanent means of access.
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<ul> <li>comply with -10(4).</li> <li>2 For oil tankers: water ballast wing tanks of less than 5 <i>m</i> width forming double side spaces and their bilge hopper sections are to be provided with means of access in accordance with the following (1) to (4). The requirements also apply to wing tanks designed as void spaces.</li> <li>(1) For double side spaces above the upper knuckle point of the bilge hopper sections, permanent means of access are to be provided in accordance with (a) to (e):</li> <li>(a) Where the vertical distance between the uppermost horizontal stringer and the deck head is not less than 6 <i>m</i>, one continuous longitudinal permanent means of access is to be provided for the full length of the tank with a means to allow passing through transverse webs installed at a minimum of 1.6 <i>m</i> to a maximum of 3 <i>m</i> below the deck head with a vertical access ladder at each end of the tank. Means of access specified are to be connected to an access ladder from the deck</li> </ul>	<ul> <li>comply with -10(4).</li> <li>2 For oil tankers: water ballast wing tanks of less than 5 <i>m</i> width forming double side spaces and their bilge hopper sections are to be provided with means of access in accordance with the following (1) to (4). The requirements also apply to wing tanks designed as void spaces.</li> <li>(1) For double side spaces above the upper knuckle point of the bilge hopper sections, permanent means of access are to be provided in accordance with (a) to (e):</li> <li>(a) Where the vertical distance between the uppermost horizontal stringer and the deck head is not less than 6 <i>m</i>, one continuous longitudinal permanent means of access is to be provided for the full length of the tank with a means to allow passing through transverse webs installed at a minimum of 1.6 <i>m</i> to a maximum of 3 <i>m</i> below the deck head with a vertical access ladder at each end of the tank. Means of access specified are to be connected to an access ladder from the deck</li> </ul>	
uppermost horizontal stringer and the deck head	uppermost horizontal stringer and the deck head	
permanent means of access is to be provided for	permanent means of access is to be provided for	
passing through transverse webs installed at a	passing through transverse webs installed at a	
be connected to an access ladder from the deck required in 14.16.3.3-1. Where two access	be connected to an access ladder from the deck required in 14.16.3.3-1. Where two access	
hatches are required, access ladders at each end of the tank are to lead to the means of access.	hatches are required, access ladders at each end of the tank are to lead to the means of access.	
(b) A continuous longitudinal permanent means of access integrated in the structure at a vertical	(b) A continuous longitudinal permanent means of access integrated in the structure at a vertical	
distance not exceeding 6 <i>m</i> apart is to be provided.	distance not exceeding 6 <i>m</i> apart is to be provided.	
(c) Plated stringers are, as far as possible, to be in alignment with horizontal girders of transverse	(c) Plated stringers are, as far as possible, to be in alignment with horizontal girders of transverse	
bulkheads. (d) Notwithstanding (a) and (b) above, the	bulkheads. (d) Notwithstanding (a) and (b) above, the	
continuous permanent means of access may be a	continuous permanent means of access may be a	
wide longitudinal, which provides access to	wide longitudinal, which provides access to	
critical details on the opposite side by means of	critical details on the opposite side by means of	

platforms attached as necessary on the web frames. Where the vertical opening of the web frame is located in way of the open part between the wide longitudinal and the longitudinal on the opposite side, platforms are to be provided on both sides of the web frames to allow safe passage through the web frame.

- (e) Notwithstanding (a) and (b) above, excess of not more than 10% may be accepted as a reasonable deviation, where deemed necessary for the integration of the permanent means of access with respect to the vertical distance of 6 m specified in (a) and (b) above.
- (2) For bilge hopper sections of which the vertical distance from the tank bottom to the upper knuckle point is not less than 6 *m*, one longitudinal permanent means of access is to be provided for the full length of the tank in accordance with the following (a) and (b). It is to be accessible by a vertical permanent means of access at each end of the tank. Notwithstanding the requirements of 14.16.3.2(11), the height of a bilge hopper tank located outside of the parallel part of the ship may be taken as the maximum of the clear vertical distance measured from the bottom plating to the hopper plating of the tank.
  - (a) The longitudinal continuous permanent means of access may be installed at a minimum of 1.6 m to a maximum of 3 m from the top of the bilge hopper section. A platform extending from the longitudinal continuous permanent means of access in way of the web frame may be used to access the identified critical structural areas.
  - (b) Alternatively, the continuous longitudinal permanent means of access may be installed at a

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  - (b) Alternatively, the continuous longitudinal permanent means of access may be installed at a

minimum of $1.2 m$ below the top of the clear
opening of the web ring allowing the use of
portable means of access to reach identified
critical structural areas.

- (3) Notwithstanding (2) above, in regards to the foremost and aftermost bilge hopper ballast tanks with raised bottoms, a combination of transverse and vertical means of access for access to the upper knuckle point for each transverse web may be accepted in place of the longitudinal permanent means of access.
- (4) Where the vertical distance referred to in (2) is less than 6 m, alternative means listed in -910 or portable means of access may be utilized in lieu of permanent means of access. To facilitate the operation of the alternative means of access, in-line openings in horizontal stringers are to be provided. The openings are to be of an adequate diameter and are to have suitable protective railings.

**3** For bulk carriers, means of access to the overhead structure of the cross deck are to be fitted in accordance with the following (1) to (5).

- (1) Permanent means of access are to be fitted to provide access to the overhead structure at both sides of the cross deck and in the vicinity of the centreline. Each means of access is to be accessible from the cargo hold access or directly from the main deck and installed at a minimum of 1.6 m to a maximum of 3 m below the deck.
- (2) An athwartship permanent means of access fitted on the transverse bulkhead at a minimum of 1.6 *m* to a maximum of 3 *m* below the cross deck head is deemed as equivalent to (1).
- (3) Access to the permanent means of access in (1) and(2) above may be via the upper stool.

minimum of 1.2 m below the top of the clear opening of the web ring allowing the use of portable means of access to reach identified critical structural areas.

- (3) Notwithstanding (2) above, in regards to the foremost and aftermost bilge hopper ballast tanks with raised bottoms, a combination of transverse and vertical means of access for access to the upper knuckle point for each transverse web may be accepted in place of the longitudinal permanent means of access.
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- (2) An athwartship permanent means of access fitted on the transverse bulkhead at a minimum of 1.6 *m* to a maximum of 3 *m* below the cross deck head is deemed as equivalent to (1).
- (3) Access to the permanent means of access in (1) and(2) above may be via the upper stool.

(4)	Ships having transverse bulkheads with full upper	(4)	Ships having transverse bulkheads with full upper	
	stools with access from the main deck which allows		stools with access from the main deck which allows	
	monitoring of all framing and plates from inside do		monitoring of all framing and plates from inside do	
	not require permanent means of access of the cross		not require permanent means of access of the cross	
	deck.		deck.	
(5)	Alternatively, movable means of access may be	(5)	Alternatively, movable means of access may be	
	utilized for access to the overhead structure of the		utilized for access to the overhead structure of the	
	cross deck if its vertical distance is not greater than 17		cross deck if its vertical distance is not greater than 17	
	m above the tank top. The movable means of access		m above the tank top. The movable means of access	
	need not necessarily be carried aboard the ship.		need not necessarily be carried aboard the ship.	
4	For cargo holds of bulk carriers, means of access are	4	For cargo holds of bulk carriers, means of access are	
to be f	itted in accordance with the following (1) to (6).	to be fi	itted in accordance with the following (1) to (6).	
(1)	Permanent means of vertical access are to be provided	(1)	Permanent means of vertical access are to be provided	
	in all cargo holds and built into the structure to allow		in all cargo holds and built into the structure to allow	
	for an inspection of a minimum of 25% of the total		for an inspection of a minimum of 25% of the total	
	number of hold frames port and starboard equally		number of hold frames port and starboard equally	
	distributed throughout the hold including at each end		distributed throughout the hold including at each end	
	in way of transverse bulkheads. But in no		in way of transverse bulkheads. But in no	
	circumstances is this arrangement to be less than 3		circumstances is this arrangement to be less than 3	
	permanent means of vertical access fitted to each side		permanent means of vertical access fitted to each side	
	(fore and aft ends of hold and mid-span). Permanent		(fore and aft ends of hold and mid-span). Permanent	
	means of vertical access fitted between two adjacent		means of vertical access fitted between two adjacent	
	hold frames is counted as access for the inspection of		hold frames is counted as access for the inspection of	
	both hold frames. A portable means of access may be		both hold frames. A portable means of access may be	
	used to gain access over the sloping plating of lower		used to gain access over the sloping plating of lower	
	hopper ballast tanks.		hopper ballast tanks.	
(2)	In addition to (1), portable or movable means of	(2)	In addition to (1), portable or movable means of	
	access are to be utilized for access to the remaining		access are to be utilized for access to the remaining	
	hold frames up to their upper brackets and transverse		hold frames up to their upper brackets and transverse	
	bulkheads.		bulkheads.	
(3)	Portable or movable means of access may be utilized	(3)	Portable or movable means of access may be utilized	
	for access to hold frames up to their upper bracket in		for access to hold frames up to their upper bracket in	
	place of the permanent means required in (1). These		place of the permanent means required in (1). These	
	means of access are to be on board the ship and readily		means of access are to be on board the ship and readily	

available for use. "Readily available" means capable of being transported to location in cargo hold and safely erected by ship's staff.

- (4) The width of vertical ladders for access to hold frames is to be at least 300 *mm*, measured between stringers.
- (5) A single vertical ladder over 6 m in length is acceptable for the inspection of the hold side frames in a single skin construction.
- (6) For double-side skin construction no vertical ladder for the inspection of the cargo hold surfaces is required. Inspection of this structure is to be provided from within the double hull space.

5 For topside tanks of bulk carriers, means of access are to be fitted in accordance with the following (1) to (4). Notwithstanding the requirements of 14.16.3.2(11), the height of a topside tank is to be the vertical distance measured at the ship's side.

- (1) For each topside tank of not less than 6 *m* in height, one longitudinal continuous permanent means of access is to be provided along the side shell webs and installed at a minimum of 1.6 *m* to a maximum of 3 *m* below deck with a vertical access ladder in the vicinity of each access to that tank.
- (2) If no access holes are provided through the transverse webs within 600 mm of the tank base and the web frame rings have a web height greater than 1 m in way of side shell and sloping plating, then step rungs/grab rails are to be provided to allow safe access over each transverse web frame ring.

(3) Three permanent means of access, fitted at the end bay and middle bay of each tank, are to be provided spanning from tank base up to the intersection of the sloping plate with the hatch side girder. The existing longitudinal structure, if fitted on the sloping plate in available for use. "Readily available" means capable of being transported to location in cargo hold and safely erected by ship's staff.

- (4) The width of vertical ladders for access to hold frames is to be at least 300 *mm*, measured between stringers.
- (5) A single vertical ladder over 6 m in length is acceptable for the inspection of the hold side frames in a single skin construction.
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- (1) For each topside tank of not less than 6 m in height, one longitudinal continuous permanent means of access is to be provided along the side shell webs and installed at a minimum of 1.6 m to a maximum of 3 m below deck with a vertical access ladder in the vicinity of each access to that tank.
- (2) If no access holes are provided through the transverse webs within 600 mm of the tank base and the web frame rings have a web height greater than 1 m in way of side shell and sloping plating, then step rungs/grab rails are to be provided to allow safe access over each transverse web frame ring.
- (3) Three permanent means of access, fitted at the end bay and middle bay of each tank, are to be provided spanning from tank base up to the intersection of the sloping plate with the hatch side girder. The existing longitudinal structure, if fitted on the sloping plate in

the space may be used as part of this means of access. the space may be used as part of this means of access. For topside tanks of which the height is less than 6 *m*, For topside tanks of which the height is less than 6 *m*, (4)(4)alternative means listed in -910 or portable means alternative means listed in -9 or portable means may may be utilized in lieu of the permanent means of be utilized in lieu of the permanent means of access. access. For bilge hopper tanks of bulk carriers, means of For bilge hopper tanks of bulk carriers, means of 6 6 access are to be fitted in accordance with the following (1) to access are to be fitted in accordance with the following (1) to (3). Notwithstanding the requirements of 14.16.3.2(11), the (3). Notwithstanding the requirements of 14.16.3.2(11), the height of a bilge hopper tank located outside of the parallel height of a bilge hopper tank located outside of the parallel part of the vessel may be taken as the maximum of the clear part of the vessel may be taken as the maximum of the clear vertical height measured from the bottom plating to the hopper vertical height measured from the bottom plating to the hopper plating of the tank. plating of the tank. (1) For each bilge hopper tank of not less than 6 m in (1) For each bilge hopper tank of not less than 6 m in height, one longitudinal continuous permanent means

of access is to be provided along the side shell webs and installed at a minimum of 1.2 m below the top of the clear opening of the web ring in accordance with (a) to (c), with a vertical access ladder in the vicinity of each access to the tank.

- (a) An access ladder between the longitudinal continuous permanent means of access and the bottom of the space are to be provided at each end of the tank.
- (b) Alternatively, the longitudinal continuous permanent means of access can be located through the upper web plating above the clear opening of the web ring, at a minimum of 1.6 *m* below the top of the bilge hopper section, when this arrangement facilitates more suitable inspection of identified structurally critical areas. An enlarged longitudinal frame can be used for the purpose of the walkway. The foremost and aftermost bilge hopper ballast tanks with raised bottom, a combination of transverse and vertical

height, one longitudinal continuous permanent means of access is to be provided along the side shell webs and installed at a minimum of 1.2 m below the top of the clear opening of the web ring in accordance with (a) to (c), with a vertical access ladder in the vicinity of each access to the tank.

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- (b) Alternatively, the longitudinal continuous permanent means of access can be located through the upper web plating above the clear opening of the web ring, at a minimum of 1.6 *m* below the top of the bilge hopper section, when this arrangement facilitates more suitable inspection of identified structurally critical areas. An enlarged longitudinal frame can be used for the purpose of the walkway. The foremost and aftermost bilge hopper ballast tanks with raised bottom, a combination of transverse and vertical

means of access for access to the sloping plate of hopper tank connection with side shell plating for each transverse web can be accepted in place of the longitudinal permanent means of access.

- (c) For double-side skin bulk carriers, the longitudinal continuous permanent means of access may be installed within 6 *m* from the knuckle point of the bilge, if used in combination with alternative methods to gain access to the knuckle point.
- (2) If no access holes are provided through the transverse ring webs within 600 mm of the tank base and the web frame rings have a web height greater than 1 m in way of side shell and sloping plating, then step rungs/grab rails are to be provided to allow safe access over each transverse web frame ring. The height of web frame rings is to be measured in way of side shell and tank base.
- (3) For bilge hopper tanks of less than 6 *m* in height, alternative means listed in -910 or portable means may be utilized in lieu of the permanent means of access. That such means of access can be deployed and made readily available in the areas where needed is to be demonstrated.

7 For double-side skin tanks of bulk carriers, permanent means of access are to be provided in accordance with the requirements in -1 or -2 above, as applicable.

8 For fore peak tanks with a depth of not less than 6 m at the centreline of the collision bulkhead, suitable means of access are to be provided for access to critical areas such as the underdeck structure, stringers, collision bulkhead and side shell structure in accordance with the following (1) and (2).

(1) Stringers of less than 6 *m* in vertical distance from the deck head or a stringer immediately above are

means of access for access to the sloping plate of hopper tank connection with side shell plating for each transverse web can be accepted in place of the longitudinal permanent means of access.

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(1) Stringers of less than 6 m in vertical distance from the deck head or a stringer immediately above are

considered to provide suitable access in combination with portable means of access.

(2) Where the vertical distance between the deck head and stringers, stringers or the lowest stringer and the tank bottom is not less than 6 m, alternative means of access listed in -910 is to be provided.

9 Unless stated otherwise in 14.16.3.4, vertical ladders that are fitted on vertical structures for inspection are to comprise of one or more ladder linking platforms spaced not more than 6 m apart vertically and displaced to one side of the ladder. Adjacent sections of ladder are to be laterally offset from each other by at least the width of the ladder. For the purpose of complying with the above, adjacent sections of ladders are to be in accordance with 14.16.3.3-6.

10 Where the Administration and the ship's owner deems that a permanent means of access may be susceptible to damage during normal cargo loading and unloading operations or is impracticable to fit a permanent means of access, alternative means of access deemed appropriate by the Administration and the ship's owner may be utilized in lieu of those specified in -1 to -8 above. In this case, the details of the alternative means of access are to be in accordance with the following (1) to (4).

- (1) The means of securing the alternative equipment are to be by means of the hull structure or a part permanently attached to it.
- (2) Alternative means of access include, but are not limited to, such devices as:
  - (a) Hydraulic arm fitted with a stable base(b) Wire lift platform
  - (c) Staging
  - (d) Rafting
  - (e) Robot arm or remotely operated vehicle (*ROV*)(f) Portable ladders more than 5 *m* long are only to

considered to provide suitable access in combination with portable means of access.

(2) Where the vertical distance between the deck head and stringers, stringers or the lowest stringer and the tank bottom is not less than 6 *m*, alternative means of access listed in -9 is to be provided.

9 Unless stated otherwise in 14.16.3.4, vertical ladders that are fitted on vertical structures for inspection are to comprise of one or more ladder linking platforms spaced not more than 6 m apart vertically and displaced to one side of the ladder. Adjacent sections of ladder are to be laterally offset from each other by at least the width of the ladder. For the purpose of complying with the above, adjacent sections of ladders are to be in accordance with 14.16.3.3-6.

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  - (c) Staging
  - (d) Rafting
  - (e) Robot arm or remotely operated vehicle (*ROV*)
- (f) Portable ladders more than 5 m long are only to

be utilized if fitted with a mechanical device to			
secure the upper end of the ladder. Where hooks			
for securing at the upper end of a ladder are			
provided as a mechanical device, such hooks are			
to be designed so that a movement fore/aft and			
sideways can be prevented at the upper end of the			
ladder			

- (g) Other means of access, approved by and acceptable to the Society
- (3) With respect to the requirements of (2) above, the selection of an alternative means of access is to be based on the following conditions. Refer to Annex 14.16 GUIDANCE FOR DECISION OF ALTERNATIVE MEANS OF ACCESS Guidance for Decision of Alternative Means of Access for details.
  - (a) Such means provide accessibility and safety equivalent to permanent means
  - (b) Such means are suitable for use in an environment of the intended spaces
  - (c) Where the use of means such as *ROV* for the inspection of under deck structures, such means can be introduced into the space directly from a deck access
  - (d) Such means comply with or are based on appropriate safety standards
  - (e) Where the use of means other than those specified in (2)(c), (d) or (f) above, such means are approved by the Administration and the ship's owner
- (4) Where a boat is used as an alternative means, the following (a) to (c) is to apply.
  - (a) The requirements of 14.16.2.4-5
  - (b) Rafts or boats alone may be allowed for survey

be utilized if fitted with a mechanical device to secure the upper end of the ladder. Where hooks for securing at the upper end of a ladder are provided as a mechanical device, such hooks are to be designed so that a movement fore/aft and sideways can be prevented at the upper end of the ladder

- (g) Other means of access, approved by and acceptable to the Society
- (3) With respect to the requirements of (2) above, the selection of an alternative means of access is to be based on the following conditions. Refer to Annex 14.16 GUIDANCE FOR DECISION OF ALTERNATIVE MEANS OF ACCESS for details.
  - (a) Such means provide accessibility and safety equivalent to permanent means
  - (b) Such means are suitable for use in an environment of the intended spaces
  - (c) Where the use of means such as *ROV* for the inspection of under deck structures, such means can be introduced into the space directly from a deck access
  - (d) Such means comply with or are based on appropriate safety standards
  - (e) Where the use of means other than those specified in (2)(c), (d) or (f) above, such means are approved by the Administration and the ship's owner
- (4) Where a boat is used as an alternative means, the following (a) to (c) is to apply.
  - (a) The requirements of 14.16.2.4-5
  - (b) Rafts or boats alone may be allowed for survey

of the under deck areas for tanks or spaces if the depth of the webs is not more than 1.5 m.

- (c) Where the depth of the webs is more than 1.5 *m*, rafts or boats alone may be allowed only if permanent means of access are provided to allow safe entry and exit. This means either:
  - i) Access direct from the deck via a vertical ladder and small platform approximately 2 *m* below the deck in each bay
  - ii) Access to the deck from a longitudinal permanent platform having ladders to the deck at each end of the tank. The platform is to, for the full length of the tank, be arranged at or above the maximum water level needed for rafting of the under deck structure. For this purpose, the ullage corresponding to the maximum water level is to be assumed not more than 3 *m* from the deck plate measured at the midspan of the deck transverses and in the middle of the length of the tank. (See Fig. 14.16.3-4) A permanent means of access from the longitudinal permanent platform to the water level indicated above is to be fitted in each bay (e.g. permanent rungs on one of the deck webs inboard of the longitudinal permanent platform).

of the under deck areas for tanks or spaces if the depth of the webs is not more than 1.5 m.

- (c) Where the depth of the webs is more than 1.5 *m*, rafts or boats alone may be allowed only if permanent means of access are provided to allow safe entry and exit. This means either:
  - i) Access direct from the deck via a vertical ladder and small platform approximately 2 *m* below the deck in each bay
  - ii) Access to the deck from a longitudinal permanent platform having ladders to the deck at each end of the tank. The platform is to, for the full length of the tank, be arranged at or above the maximum water level needed for rafting of the under deck structure. For this purpose, the ullage corresponding to the maximum water level is to be assumed not more than 3 m from the deck plate measured at the midspan of the deck transverses and in the middle of the length of the tank. (See Fig. 14.16.3-4) A permanent means of access from the longitudinal permanent platform to the water level indicated above is to be fitted in each bay (e.g. permanent rungs on one of the deck webs inboard of the longitudinal permanent platform).

### Rules for the survey and construction of steel ships Part C Part 2-1 Chapter 4 4.3.2.1-2

Correction	Present	Note
1 Where the contact point between the container cargo	1 Where the contact point between the container cargo	Reference correction
and the hull structure is located directly above the connection	and the hull structure is located directly above the connection	
between primary supporting members and plate members, the	between primary supporting members and plate members, the	
internal pressure of the cargo may not be considered.	internal pressure of the cargo may not be considered.	
2 In applying 4.34.2.4, Part 1, the parameters ( $GM$ , $z_G$	2 In applying 4.3.2.4, Part 1, the parameters $(GM, z_G)$	
etc.) required to calculate the dynamic pressure due to ballast	etc.) required to calculate the dynamic pressure due to ballast	
water are to be the values in the ballast condition. The same	water are to be the values in the ballast condition. The same	
parameters are to be applied where the dynamic pressure due	parameters are to be applied where the dynamic pressure due	
to liquid other than ballast water, such as the pressure due to	to liquid other than ballast water, such as the pressure due to	
fuel oil tank, is considered. However, the values in Table	fuel oil tank, is considered. However, the values in Table	
<b>4.3.2-1</b> may be used if the parameters are not available.	<b>4.3.2-1</b> may be used if the parameters are not available.	

### Rules for the survey and construction of steel ships Part C Part 2-1 Chapter 4 4.4.3.2

Correction	Present	Note
For the requirements of double hull, the hydrostati pressure at the draught specified in 4.4.3- <u>1</u> are to b considered.	For the requirements of double hull, the hydrostatic pressure at the draught specified in 4.4.3-1 are to be considered.	Wording correction

## Rules for the survey and construction of steel ships Part C Part 2-1 Chapter 5 5.5.2.8

Correction	Present	Note
1 In the cargo hold to be analysed, the evaluation stress	1 In the cargo hold to be analysed, the evaluation stress	Wording correction
$\sigma_T$ of each element that consists of all the members subject to	$\sigma_T$ of each element that consists of all the members subject to	there are a second s
assessment is to satisfy the following formulae. Mean stress	assessment is to satisfy the following formulae. Mean stress	
corresponding to standard mesh size may be use when using	corresponding to standard mesh size may be use when using	
smaller mesh size than the standard mesh size specified in	smaller mesh size than the standard mesh size specified in	
5.5.2.3-5.	5.5.2.3-5.	
(a) For hatch side coamings (including top plates),		
strength decks, sheer strakes, and topmost strakes	strength decks, sheer strakes, and topmost strakes	
of inner hulls, / longitudinal bulkheads	of inner hulls, bulkheads	
$\sigma_T \leq 200/K(N/mm^2)$	$\sigma_T \leq 200/K(N/mm^2)$	
(b) For bottom shell plating and bilge plating	(b) For bottom shell plating and bilge plating	

Editorial Correction for Technical Rules and Guidance

$\sigma_T \le 210/K(N/mm^2)$	$\sigma_T \leq 210/K(N/mm^2)$	
2 The requirements in -1 above need not be applied to	2 The requirements in -1 above need not be applied to	
the locations where localised stress increase is due to hatch	the locations where localised stress increase is due to hatch	
deformation, etc. (e.g. foremost cargo holds and the fore/aft	deformation, etc. (e.g. foremost cargo holds and the fore/aft	
ends of engine rooms and accommodation areas) provided that	ends of engine rooms and accommodation areas) provided that	
fatigue strength assessments are carried out. However, the	fatigue strength assessments are carried out. However, the	
reference stress obtained in accordance with 5.5.2.7 is to be	reference stress obtained in accordance with 5.5.2.7 is to be	
less than the specified minimum yield stress of relevant steel	less than the specified minimum yield stress of relevant steel	
assigned at such locations.	assigned at such locations.	

# Rules for the survey and construction of steel ships Part C Part 2-1 Chapter 5 5.4.2

Correction	Present	Note
(Omitted)	(Omitted)	Reference correction
$M_U$ : The hull girder ultimate bending moment	$M_U$ : The hull girder ultimate bending moment	
capacity $(kN-m)$ , which is to be obtained by the		
method specified in Annex 5.4, Part 1. However,	1	
instead of the load-end shortening curves formula	instead of the load-end shortening curves formula	
$\sigma_{CR5} - \epsilon$ specified in A2An2.3.8 of, Annex 5.4,	$\sigma_{CR5} - \epsilon$ specified in A2.3.8 of Annex 5.4, Part	
Part 1, the following is to be used.	1, the following is to be used.	
$\sigma_{YP}\Phi$	$\sigma_{YP}\Phi$	
$\sigma_{CR5} = \min \left\{ \phi \sigma_{YP} \left[ \frac{s}{l} \left( \frac{2.25}{\beta_E} - \frac{1.25}{\beta_E^2} \right) + 0.1 \left( 1 - \frac{s}{l} \right) \left( 1 + \frac{1}{\beta_E^2} \right)^2 \right] \right\}$	$\sigma_{CR5} = \min\left\{\phi\sigma_{YP}\left[\frac{s}{l}\left(\frac{2.25}{\beta_{E}} - \frac{1.25}{\beta_{E}^{2}}\right) + 0.1\left(1 - \frac{s}{l}\right)\left(1 + \frac{1}{\beta_{E}^{2}}\right)^{2}\right]\right\}$	
$\sigma_{YP}$ :Standard minimum yield stress of plate	$\sigma_{YP}$ : Standard minimum yield stress of plate	
material (N/mm <sup>2</sup> )	material $(N/mm^2)$	
$\Phi, \beta_E, s, l$ : As prescribed in A2An2.3.8—in.	$\Phi, \beta_E, s, l$ : As prescribed in A2.3.8 in Annex	
Annex 5.4, Part 1.	5.4, Part 1.	
(Omitted)	(Omitted)	

Rules for the survey an	nd construction of steel shi	ps Part C Part 2-1 Annex	5.4 An2 An2.5.3
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Correction	Present	Note
Ultimate strength of torsional buckling $\sigma_{US2i}$ (N/mm <sup>2</sup> ),	Ultimate strength of torsional buckling $\sigma_{US2i}$ (N/mm <sup>2</sup> ),	Reference correction
to be taken as follows:	to be taken as follows:	
$\sigma_{US2i} = \frac{A_P \sigma_{CP} + A_S \sigma_{C2}}{A_P + A_S}$	$\sigma_{US2i} = \frac{A_P \sigma_{CP} + A_S \sigma_{C2}}{A_P + A_S}$	
$A_P + A_S$	$A_P + A_S$	
$\sigma_{C2}$ : Critical stress ( <i>N/mm<sup>2</sup></i> ), equal to the following:	$\sigma_{C2}$ : Critical stress ( <i>N/mm<sup>2</sup></i> ), equal to the following:	
$\sigma_{C2} = \sigma_{E2}$ for $\sigma_{E2} \leq \frac{\sigma_{YS}}{2}$ ,	$\sigma_{C2} = \sigma_{E2}$ for $\sigma_{E2} \leq \frac{\sigma_{YS}}{2}$ ,	
$\sigma_{C2} = \sigma_{YS} \left( 1 - \frac{\sigma_{YS}}{4\sigma_{E2}} \right) \text{ for } \sigma_{E2} > \frac{\sigma_{YS}}{2}$	$\sigma_{C2} = \sigma_{YS} \left( 1 - \frac{\sigma_{YS}}{4\sigma_{E2}} \right)$ for $\sigma_{E2} > \frac{\sigma_{YS}}{2}$	
$\sigma_{E2}$ : Euler torsional buckling stress ( <i>N/mm<sup>2</sup></i> ),	$\sigma_{E2}$ : Euler torsional buckling stress (N/mm <sup>2</sup> ),	
taken as $\sigma_{ET}$ specified in A2An2.4.4-4.	taken as $\sigma_{ET}$ specified in A2.4.4-4 Annex 5.3	
Annex 5.3 "Buckling Strength Assessment	<b>"Buckling Strength Assessment Relating</b>	
Relating to Longitudinal Strength (UR	to Longitudinal Strength (UR S11A)".	
S11A)".		
$\sigma_{CP}$ : Buckling stress of the attached plating ( <i>N/mm<sup>2</sup></i> ),	$\sigma_{CP}$ : Buckling stress of the attached plating ( <i>N/mm</i> <sup>2</sup> ),	
equal to the following:	equal to the following:	
$\sigma_{CP} = \left(\frac{2.25}{\beta_F} - \frac{1.25}{\beta_F^2}\right) \sigma_{YP} \text{ for } \beta_E > 1.25$	$\sigma_{CP} = \left(\frac{2.25}{\beta_E} - \frac{1.25}{\beta_E^2}\right) \sigma_{YP} \text{ for } \beta_E > 1.25$	
$\sigma_{CP} = \left(\frac{\beta_E}{\beta_E} - \frac{\beta_E^2}{\beta_E^2}\right) \delta_{YP} \text{ for } \beta_E > 1.25$	$o_{CP} = \left(\frac{\beta_E}{\beta_E} - \frac{\beta_E^2}{\beta_E^2}\right) o_{YP} \text{ for } p_E > 1.25$	
$\sigma_{CP} = \sigma_{YP}$ for $\beta_E \le 1.25$	$\sigma_{CP} = \sigma_{YP}$ for $\beta_E \le 1.25$	
$\beta_E$ : As defined in <b>An2.5.2</b> above.	$\beta_E$ : As defined in An2.5.2 above.	

# Rules for the survey and construction of steel ships Part C Part 2-1 Chapter 9 9.3.2.3

Correction	Present	Note
Members to be modelled, element types, mesh size,	Members to be modelled, element types, mesh size,	Wording correction
and notes on modelling are shown in 9.4.2.3, Part 1, 9.4.2.4,	and notes on modelling are shown in 9.4.2.3, Part 1, 9.4.2.4,	worung correction
Part 1,9.4.2.7, Part 1 and 9.4.2.8, Part 1, respectively.	Part 1,9.4.2.7, Part 1 and 9.4.2.8, Part 1, respectively.	

#### Rules for the survey and construction of steel ships Part C Part 2-2 Chapter 4 4.8.1.1-1

Correction	Present	Note
1 Loads to be considered in hatch covers and other	1 Loads to be considered in hatch covers and other	Wording correction
equipment as specified in 14.1 are to be in accordance with the	equipment as specified in 14.1 are to be in accordance with the	to oralling correction
requirements of 4.8.2, instead of 4.10.2, Part 1, Part C.	requirements of 4.8.2, instead of 4.10.2, Part 1. However, the	
However, the relevant requirements in Part CSR-B&T may	relevant requirements in Part CSR-B&T may be applied	
be applied where deemed appropriate by the Society.	where deemed appropriate by the Society.	
2 In applying the requirements of 4.8, the position of	2 In applying the requirements of 4.8, the position of	
exposed decks (Position I, Position II, etc.) is to be in	exposed decks (Position I, Position II, etc.) is to be in	
accordance with the requirements specified in 1.4.3.2, Part 1.	accordance with the requirements specified in 1.4.3.2, Part 1.	

#### Rules for the survey and construction of steel ships Part C Part 2-2 Chapter 5 5.2.1.1

Correction	Present	Note
In the assessment specified in 5.4.2.32, Part 1, the		Reference correction
coefficient $\gamma_{DB}$ that takes into account the effect of double	coefficient $\gamma_{DB}$ that takes into account the effect of double	
bottom bending is as follows.	bottom bending is as follows.	
Holds emptied when in a full load condition: $\gamma_{DB} =$	Holds emptied when in a full load condition: $\gamma_{DB} =$	
1.25	1.25	
Other holds: $\gamma_{DB} = 1.15$	Other holds: $\gamma_{DB} = 1.15$	

### Rules for the survey and construction of steel ships Part C Part 2-2 Chapter 14 14.1.1.2-2

Correction	Present	Note
1 Unless otherwise specified, the structural scantlings	1 Unless otherwise specified, the structural scantlings	Reference correction
specified in 14.1 are to be net scantlings which do not include	specified in 14.1 are to be net scantlings which do not include	
any corrosion additions.	any corrosion additions.	
2 Required gross scantlings are not to be less than the	2 Required gross scantlings are not to be less than the	
scantlings obtained from adding the corrosion addition $t_c$	scantlings obtained from adding the corrosion addition $t_c$	
specified in $3.31$ to the net scantlings obtained from the	specified in 3.3 to the net scantlings obtained from the	
requirements in 3.1.	requirements in 3.1.	
<b>3</b> According to the requirements of 14.1.1.1-2, where	3 According to the requirements of 14.1.1.1-2, where	
applying the relevant requirements of Part CSR-B&T, the	applying the relevant requirements of Part CSR-B&T, the	
corrosion addition of the stiffener attached to the hatch	corrosion addition of the stiffener attached to the hatch	
coamings, hatch coaming stays and stays is to be read as 1.5	coamings, hatch coaming stays and stays is to be read as 1.5	

<i>mm</i> in the requirements of <b>Part CSR-B&amp;T</b> .	<i>mm</i> in the requirements of <b>Part CSR-B&amp;T</b> .	
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# Rules for the survey and construction of steel ships Part C Part 2-2 Chapter 14 14.1.4.7

Correction	Present	Note
(Omitted)	(Omitted)	Reference correction
(4) Miscellaneous	(4) Miscellaneous	
(a) The thickness of the top plating of steel hatch	(a) The thickness of the top plating of steel hatch	
covers is to comply with the requirements in	covers is to comply with the requirements in	
14.1.4.2 and 14.6.13.1-1 (1), Part 1.	14.1.4.2 and 14.6.13.1-1 (1), Part 1.	
(b) The section modulus of stiffeners supported by	(b) The section modulus of stiffeners supported by	
girders and subjected to uniformly distributed	girders and subjected to uniformly distributed	
loads may be obtained from finite element	loads may be obtained from finite element	
method, or obtained from the requirements in	method, or obtained from the requirements in	
14. <u>2.51</u> .4 <u>.3</u> .	14.2.5.4.	

# Rules for the survey and construction of steel ships Part C Part 2-2 Chapter 14 14.1.5.1

	Correction		Present	Note
	Hatch beams are to comply with the following (1) to		Hatch beams are to comply with the following (1) to	Wording correction
(4) in	addition to 14.6.7, Chapter 14, Part 1.	(4) in a	addition to 14.6.7, Chapter 14, Part 1.	
(1)	The diameter of lightening holes provided in portable	(1)	The diameter of lightening holes provided in portable	
	beams is to be smaller than one third of the depth of		beams is to be smaller than one third of the depth of	
	portable beams in the section. Where the loading of		portable beams in the section. Where the loading of	
	lumber is planned, lightening holes are recommended		lumber is planned, lightening holes are recommended	
	not to be provided.		not to be provided.	
(2)	The thickness of web plates is not to be less than the	(2)	The thickness of web plates is not to be less than the	
	value obtained from the following formula.		value obtained from the following formula.	
	10h + 4 (mm)		10h + 4 (mm)	
	<i>h</i> : Depth ( <i>m</i> ) of the hatch beam at the mid-point		<i>h</i> : Depth ( <i>m</i> ) of the hatch beam at the mid-point	
(3)	In applying 14.1.3 and 14.1.4, the distance between	(3)	In applying 14.1.3 and 14.1.4, the distance between	
	the inner sides of hatchway coamings may be used as		the inner sides of hatchway coamings may be used as	
	the span $(l)$ of the portable beams.		the span $(l)$ of the portable beams.	

# Rules for the survey and construction of steel ships Part C Part 2-2 Annex 1.1 An1.

Correction	Present	Note
An1. General	An1 General	Wording correction
An1.1.1	An1.1.1	0
1 This Annex applies to bulk carriers defined in	1 This Annex applies to bulk carriers defined in	
An1.2.1(1).	An1.2.1(1).	
2 Except where required otherwise in this Annex, the	2 Except where required otherwise in this Annex, the	
requirements of Parts 2-2, 2-3, 2-4, 2-5 and the general	requirements of Parts 2-2, 2-3, 2-4, 2-5 and the general	
requirements for construction and equipment of steel ships, as	requirements for construction and equipment of steel ships, as	
applicable, are to be applied.	applicable, are to be applied.	
<b>3</b> For the application of the requirements of $An2_{\overline{7}}$	<b>3</b> For the application of the requirements of <b>An2</b> , <b>An3</b> ,	
An3 <sub></sub> An4. and An5. for bulk carriers of double-side skin	An4 and An5 for bulk carriers of double-side skin	
construction which have a longitudinal bulkhead located	construction which have a longitudinal bulkhead located	
within $B/5$ or 11.5 m, whichever is less, inboard from the	within $B/5$ or 11.5 m, whichever is less, inboard from the	
ship's side at right angled to the centreline at the assigned	ship's side at right angled to the centreline at the assigned	
summer load line, cargo holds where the longitudinal	summer load line, cargo holds where the longitudinal	
bulkhead is closer to the ship's side than the required distance	bulkhead is closer to the ship's side than the required distance	
are to be considered flooded.	are to be considered flooded.	

# Rules for the survey and construction of steel ships Part C Part 2-2 Annex 1.1 An3. An3.1.1

Correction	Present	Note
<b>1</b> The requirements in An3. apply to vertically corrugated watertight bulkheads in cargo holds of bulk carriers, coming under the following (1) or (2), of not less than	<b>1</b> The requirements in <b>An3</b> apply to vertically corrugated watertight bulkheads in cargo holds of bulk carriers, coming under the following (1) or (2), of not less than	Wording correction
150 m in length $L_f$ , designed to carry solid bulk cargoes	150 m in length $L_f$ , designed to carry solid bulk cargoes	
having a density of not less than 1.0 $t/m^3$ .	having a density of not less than 1.0 $t/m^3$ .	
(1) Bulk carriers of single-side skin construction	(1) Bulk carriers of single-side skin construction	
(2) Bulk carriers of double-side skin construction in	(2) Bulk carriers of double-side skin construction in	
which any part of a longitudinal bulkhead is located	which any part of a longitudinal bulkhead is located	
within $B/5$ or 11.5 m, whichever is less, inboard from	within $B/5$ or 11.5 m, whichever is less, inboard from	
the ship's side at right angles to the centreline at the assigned summer load line	the ship's side at right angles to the centreline at the assigned summer load line	
2 In An3 <sub>5.</sub> , "homogeneous loading condition" means a	2 In An3, "homogeneous loading condition" means a	
loading condition in which the ratio between the highest and	loading condition in which the ratio between the highest and	
lowest filling ratio, evaluated for each hold, does not exceed	lowest filling ratio, evaluated for each hold, does not exceed	
1.20, to be corrected for different cargo densities.	1.20, to be corrected for different cargo densities.	
3 The most severe combinations of cargo induced loads	3 The most severe combinations of cargo induced loads	
and flooding loads are to be used for examining the scantlings	and flooding loads are to be used for examining the scantlings	
of the bulkheads, depending on the following loading	of the bulkheads, depending on the following loading	
conditions included in the loading manual: In any case, the	conditions included in the loading manual: In any case, the	
pressure due to the flood water alone needs to be considered	pressure due to the flood water alone needs to be considered	
when making calculations. Non-homogeneous loading	when making calculations. Non-homogeneous loading	
conditions associated with multiport loading and unloading	conditions associated with multiport loading and unloading	
operations that occur before a homogeneous loading condition	operations that occur before a homogeneous loading condition	
is reached does not need to be considered.	is reached does not need to be considered.	
<ul> <li>(1) Homogeneous loading conditions</li> <li>(2) Non homogeneous loading conditions</li> </ul>	<ul> <li>(1) Homogeneous loading conditions</li> <li>(2) Non homogeneous loading conditions</li> </ul>	
(2) Non-homogeneous loading conditions	(2) Non-homogeneous loading conditions	
4 In applying the requirements of $An3_{\overline{3}}$ holds carrying	4 In applying the requirements of <b>An3</b> , holds carrying	
bound cargoes such as steel mill products are to be considered	bound cargoes such as steel mill products are to be considered	
as empty holds for examining the scantlings of the bulkhead. (Omitted)	as empty holds for examining the scantlings of the bulkhead. (Omitted)	
(Ommod)	(Omnucu)	

# Rules for the survey and construction of steel ships Part C Part 2-2 Annex 1.1 An3. Table An7

	Corre	ction		Present		Note
Table An7 Sta	tic Load $P_{bf-s}$ Ac	ting on Vertically	v Corrugated	Watertight Bulkhead in Cargo Hold under Floo	oded Conditions	Reference correction
	Flooding pattern	Position of load point		static pressure $P_{bf-s}(kN/m^2)$		
		$z > z_C$	$P_{bf-s}=0$		_	
	$z_F < z_C$	$z_C \ge z \ge z_F$	$P_{bf-s} = \rho_C g(z)$	*		
		$z_F > z \ge h_{DB}$	$P_{bf-s} = \rho g(z_b)$	$(F_{F}-z) + [\rho_{C}(z_{C}-z) - \rho(1-perm)(z_{F}-z)]gK_{c-f}$		
		$z > z_F$	$P_{bf-s}=0$		_	
	$z_F \geq z_C$	$z_F \ge z \ge z_C$	$P_{bf-s} = \rho g(z_b)$			
		$z_C > z \ge h_{DB}$	$P_{bf-s} = \rho g(z_h)$	$F_F - z$ ) + [ $\rho_C - \rho(1 - perm)$ ] $g(z_C - z)K_{C-f}$		
	Notes: $z_F$ : As specifie $z_C, h_{DB}, \rho_C, K_{C-f}$ :	d in Table An5. As specified in Table .	An6.			
	perm: As specifie	d in An1.1.2.1(7).				

# Rules for the survey and construction of steel ships Part C Part 2-2 Annex 1.1 An3. An3.4.1

Correction	Present	Note
<b>1</b> The section modulus at the lower end of the corrugation is to be calculated with the following	1 The section modulus at the lower end of the corrugation is to be calculated with the following	Reference correction
considerations.	considerations.	
(Omitted)	(Omitted)	
(3) Provided that effective shedder plates as defined in	(3) Provided that effective shedder plates as defined in	
An3.5.1-5 are fitted (See Figs. An3(a) and An3(b)),	An3.5.1-5 are fitted (See Figs. An3(a) and An3(b)),	
the area of flange plates may be increased by the	the area of flange plates may be increased by the	
following formula when calculating the section	following formula when calculating the section	
modulus of corrugations (See cross-section (1) in $\Sigma^{2}$	modulus of corrugations (See cross-section (1) in $\mathbf{E}^{*}$	
Figs. An3(a) and An3(b)), but it is not to be greater	Figs. An3(a) and An3(b)), but it is not to be greater	
than $2.5at_f$ .	than $2.5at_f$ .	
$2.5a\sqrt{t_f t_{sh}} \ (cm^2)$	$2.5a\sqrt{t_f t_{sh}} (cm^2)$	
<ul><li>a: Width (m) of corrugation flange (See Fig. An2 (a))</li></ul>	<ul><li>a: Width (m) of corrugation flange (See Fig. An2 (a))</li></ul>	
$t_{sh}$ : Net shedder plate thickness ( <i>mm</i> )	$t_{sh}$ : Net shedder plate thickness (mm)	
$t_f$ : Net corrugation flange thickness ( <i>mm</i> )	$t_f$ : Net corrugation flange thickness ( <i>mm</i> )	
(4) Provided that effective gusset plates as defined in	(4) Provided that effective gusset plates as defined in	
An3.5.1-6 are fitted (See Figs. An4(a) and_An4(b)),	An3.5.1-6 are fitted (See Figs. An4(a) and An4(b)),	
the area of flange plates may be increased by the	the area of flange plates may be increased by the	
following formula when calculating the section	following formula when calculating the section	
modulus of corrugations (See cross-section (1) in	modulus of corrugations (See cross-section (1) in	
Figs. An4(a) and An4(b)).	Figs. An4(a) and An4(b)). $7^{2}$	
$7h_g t_f (cm^2)$	$7h_g t_f (cm^2)$	
$h_g$ : Height of gusset plate ( <i>m</i> ), but not to be greater	$h_g$ : Height of gusset plate ( <i>m</i> ), but not to be greater	
than $10S_{gu}/7$ (See Figs. An4(a)and_An4(b))	than $10S_{gu}/7$ (See Figs. An4(a)and An4(b))	
$S_{gu}$ : Width of gusset plate ( <i>m</i> )		
$t_f$ : Net flange thickness ( <i>mm</i> )	$S_{gu}$ : Width of gusset plate ( <i>m</i> )	
(Omitted)	$t_f$ : Net flange thickness ( <i>mm</i> )	
2 Provided that effective gusset plates or shedder plates	(Omitted)	
as defined in An3.5.1-5, and An3.5.1-6 are fitted, the section	2 Provided that effective gusset plates or shedder plates	
modulus of corrugations at the lower end $Z_{le}$ is to be not	as defined in An3.5.1-5, and An3.5.1-6 are fitted, the section	

greater than $Z'_{le}$ obtained from the following formula:	modulus of corrugations at the lower end $Z_{le}$ is to be not	
$Z'_{le} = Z_g + \frac{Qh_g - 0.5h_g^2 S_1 P_g}{\sigma_a} \times 10^3 \ (cm^3)$	greater than $Z'_{le}$ obtained from the following formula:	
$Z_{g}$ : Section modulus ( <i>cm</i> <sup>3</sup> ) of corrugation according	$Z'_{le} = Z_g + \frac{Qh_g - 0.5h_g^2 S_1 P_g}{\sigma_a} \times 10^3  (cm^3)$	
to -3 in way of the upper end of shedder plates or	$Z_g$ : Section modulus ( <i>cm</i> <sup>3</sup> ) of corrugation according	
gusset plates	to -3 in way of the upper end of shedder plates or	
Q: Shear force $(kN)$ as specified in An3.3.1-2.	gusset plates	
$h_g$ : Height (m) of shedder plates or gusset plates (See	<i>Q</i> : Shear force $(kN)$ as specified in An3.3.1-2.	
Figs. An3(a), An3(b), An4(a) and An4(b))))	$h_g$ : Height (m) of shedder plates or gusset plates (See	
$S_1$ : As given in <b>An3.2.1-2</b>	Figs. An3(a), An3(b), An4(a) and An4(b)b)	
$P_q$ : Resultant pressure $(kN/m^2)$ as specified in		
An3.2.1-5., calculated in way of the middle of the	$S_1$ : As given in An3.2.1-2	
shedder plates or gusset plates	$P_q$ : Resultant pressure $(kN/m^2)$ as specified in	
$\sigma_a$ : Yield stress ( <i>N/mm<sup>2</sup></i> ) of the material to be used	An3.2.1-5., calculated in way of the middle of the	
for the lower end of corrugations	shedder plates or gusset plates	
(Omitted)	$\sigma_a$ : Yield stress ( <i>N/mm<sup>2</sup></i> ) of the material to be used	
	for the lower end of corrugations	
	(Omitted)	

# Rules for the survey and construction of steel ships Part C Part 2-2 Annex 1.1 An3. An3.5.1

Correction	Present	Note
1 The corrugation angle $\phi$ shown in Fig. An2(a) is not	1 The corrugation angle $\phi$ shown in Fig. An2(a) is not	Reference correction
to be less than 55°	to be less than 55°	
2 The thickness of the lower part of the corrugations	2 The thickness of the lower part of the corrugations	
calculated in An3.4.1-1, -2, -4 and -5 are to be maintained for	calculated in An3.4.1-1, -2, -4 and -5 are to be maintained for	
a distance of not less than $0.15l$ from the inner bottom (if no	a distance of not less than 0.15 <i>l</i> from the inner bottom (if no	
lower stool is fitted) or the top of the lower stool.	lower stool is fitted) or the top of the lower stool.	
3 The thickness of the middle part of the corrugations	3 The thickness of the middle part of the corrugations	
calculated in A3An3.4.1-3, -4 and -5 are to be maintained for	calculated in A3.4.1-3, -4 and -5 are to be maintained for a	
a distance of not less than 0.3 <i>l</i> from the deck (if no upper stool	distance of not less than 0.3 <i>l</i> from the deck (if no upper stool	
is fitted) or the bottom of the upper stool.	is fitted) or the bottom of the upper stool.	
(Omitted)	(Omitted)	

### Rules for the survey and construction of steel ships Part C Part 2-2 Annex 1.1 An5.

Correction	Present	Note
An5. Longitudinal Strength in Flooded Condition	An5 Longitudinal Strength in Flooded Condition	Wording correction
<ul> <li>An5.1.1 (Omitted)</li> <li>5 For bulk carriers as defined in 1.3.1 (13), Part B, the ballast conditions specified in -2(1) above are to include the following conditions. Where the requirements of An1.3.1-2 and -3 in and -3, Annex 3.8, Part 1 apply to such ships, intermediate conditions specified in An1.3.1-2 and in-3. Annex 3.8, Part 1 are to be included with the conditions at departure and arrival. Where ballast conditions and/or cargo loaded conditions involve partially filled ballast tanks at departure, arrival or during intermediate conditions, these ballast tanks are to be added as either full or empty according to the requirements of 4.3.2.2-4 and -5, Part 1.</li> <li>(1) In the case of empty ballast tanks in the ballast conditions prescribed in -2(1) above, the tanks are to be full (with the exception of ballast holds in a normal ballast condition).</li> <li>6 Where ships are assumed to have sufficient longitudinal strength in flooded conditions, the longitudinal strength in flooded conditions, the longitudinal strength evaluation may be omitted at the Society's discretion. In this case, the reason of the omission is to be clarified.</li> </ul>	<ul> <li>during intermediate conditions, these ballast tanks are to be added as either full or empty according to the requirements of 4.3.2.2-4 and -5, Part 1.</li> <li>(1) In the case of empty ballast tanks in the ballast conditions prescribed in -2(1) above, the tanks are to be full (with the exception of ballast holds in a normal</li> </ul>	

Correction	Present	Note
<ul> <li>5 (Omitted)</li> <li>((1) to (3) are omitted.)</li> <li>(4) Buckling Stress (Omitted)</li> </ul>	<ul> <li>5 (Omitted)</li> <li>((1) to (3) are omitted.)</li> <li>(4) Buckling Stress (Omitted)</li> </ul>	Reference correction
<ul> <li>(b) For p ≥ p<sub>cr</sub> or p ≤ -p<sub>cr</sub>: (ommited)</li> <li>l: Span of stiffener (mm) However, where suitable end brackets are fitted, the span of the stiffener which is used in the formulae except α<sub>p</sub>, m<sub>1</sub> and P<sub>c</sub> may be corrected as specified in the following i) or ii) depending on the type of end bracket (See Fig. <u>A13An13</u>).</li> </ul>	<ul> <li>(b) For p ≥ p<sub>cr</sub> or p ≤ -p<sub>cr</sub>:</li> <li>(Omitted)</li> <li>l: Span of stiffener (mm) However, where suitable end brackets are fitted, the span of the stiffener which is used in the formulae except α<sub>p</sub>, m<sub>1</sub> and P<sub>c</sub> may be corrected as specified in the following i) or ii) depending on the type of end bracket (<i>See</i> Fig. A13).</li> </ul>	
(Omitted)	(Omitted)	

# Rules for the survey and construction of steel ships Part C Part 2-3 Chapter 4 4.5.1.1

Correction	Present	Note
Loads to be considered in hatch covers and othe		Wording correction
equipment as specified in 14.1 are to be in accordance with the	e equipment as specified in 14.1 are to be in accordance with the	the stand good contained
requirements of 4.8, Part 2-2, instead of 4.10, Part 1, Part C	requirements of 4.8, Part 2-2, instead of 4.10, Part 1.	
However, the relevant requirements in Part CSR-B&T may	However, the relevant requirements in Part CSR-B&T may	
be applied where deemed appropriate by the Society.	be applied where deemed appropriate by the Society.	

#### Rules for the survey and construction of steel ships Part C Part 2-4 Chapter 3 3.1.1-1

Correction	Present	Note
<b>1</b> The thickness of webs and upper/lower brackets of side frames is not to be less than that obtained from the	1 The thickness of webs and upper/lower brackets of side frames is not to be less than that obtained from the	Reference correction
following formula.	following formula.	
$t = 0.03L_{C200} + 3.0 \ (mm)$	$t = 0.03L_{C200} + 3.0 \ (mm)$	
$L_{C200}$ : The length of the ship ( <i>m</i> ) specified in 1.4.2.2.	$L_{C200}$ : The length of the ship ( <i>m</i> ) specified in 1.4.2.2.	
<u>Part 1</u> .		
2 The thickness of side shell plating located between	2 The thickness of side shell plating located between	
deck and bilge hopper tanks is not to be less than that obtained	deck and bilge hopper tanks is not to be less than that obtained	
from the following formula:	from the following formula:	
$t = 0.8\sqrt{L_C} \ (mm)$	$t = 0.8\sqrt{L_C} \ (mm)$	
$L_C$ : The length of the ship (m) specified in	$L_C$ : The length of the ship (m) specified in 1.5.3.1	
1. <u>54</u> .3.1 <u>, Part 1.</u>		

#### Rules for the survey and construction of steel ships Part C Part 2-4 Chapter 5 5.1.1.1

Correction	Present	Note
In the assessment decision specified in 5.4.2.32, Part	In the assessment decision specified in 5.4.2.3, Part 1,	Reference correction
1, the coefficient $\gamma_{DB}$ that takes into account the effect of	the coefficient $\gamma_{DB}$ that takes into account the effect of double	
double bottom bending is as follows.	bottom bending is as follows.	
$\gamma_{DB} = 1.15$	$\gamma_{DB} = 1.15$	

#### Rules for the survey and construction of steel ships Part C Part 2-4 Chapter 6 6.1.1.1

Correction	Present	Note
An example of local strength requirements for chip	An example of local strength requirements for chip	Reference correction
carriers is shown in Fig. 6.1.1-12. Plates and stiffeners	carriers is shown in Fig. 6.1.1-1. Plates and stiffeners received	
received lateral loads that are not shown in Fig. 6.1.1-2 are to	lateral loads that are not shown in Fig. 6.1.1-2 are to be	
be assessed in accordance with the requirements of 6.3 and	assessed in accordance with the requirements of 6.3 and 6.4,	
6.4, Part 1.	Part 1.	

# Rules for the survey and construction of steel ships Part C Part 2-5 Chapter 1 1.1.1.2

Correction	Present	Note
Ships to which this part applies, those deemed to b		Reference correction
bulk carriers as defined in An1.2.1.2 (1) in), Annex 1.	bulk carriers as defined in An1.1.2 (1) in Annex 1.1	
"Additional Requirements for Bulk Carriers in Chapte	* "Additional Requirements for Bulk Carriers in Chapter	
XII of the SOLAS Convention" of Chapter 1, Part 2-2, ar	E XII of the SOLAS Convention" of Chapter 1, Part 2-2, are	
to also comply with the annex.	to also comply with the annex.	

# Rules for the survey and construction of steel ships Part C Part 2-5 Chapter 4 Table 4.4.2-1

	Correction	•	Present	Note
	Table 4.4.	2-1 Static Load of Ste	eel Coil F <sub>SCs</sub>	Reference correction
	Members		$F_{SCS}(kN)$	
			$C_{SC1}W_{SC}\frac{n_1n_2}{n_3}g$	
	Inner bottom plating	$n_2 > 10 \text{ or } n_3 > 5$	$C_{SC1}W_{SC}n_1\frac{\ell}{\ell_{st}}g$	
		$n_2 \leq 10$ and $n_3 \leq 5$	$C_{SC2}W_{SC}\frac{n_2}{n_3}g\cdot\coslpha$	
	Hopper tank sloping		$C_{SC2}W_{SC}rac{\ell}{\ell_{st}}g\cdot\coslpha$	
Lo	ngitudinal bulkheads and side frames	NA	0	
Notes: $n_1:$ $n_2:$ $n_3:$ $W_{SC}:$ $C_{SC1}:$ $C_{SC2}:$ $\ell:$ $\ell:$ $\ell_{St}:$ $\alpha:$	Notes: $n_1$ :Number of loading stages of steel coil $n_2$ :The load point per panel (the number of $C_{n_3}$ :Number of dunnage threads supporting of $W_{SC}$ :Mass of one steel coil (t) $C_{SC1}$ :Coefficient as follows: $C_{SC1}$ :Coefficient as follows: $C_{SC2}$ :Coefficient, as follows: $C_{SC2}$ :Coefficient, as follows: $C_{SC2}$ :Coefficient, as follows: $C_{SC2}$ :Coefficient, as follows: $C_{SC2}$ = 3.2 for single-tiered stacking or not position from the bilge tank sloping or imposition from tank		coils	

# Rules for the survey and construction of steel ships Part C Part 2-5 Chapter 10 10.5.1.1

Correction		Present		Note
Self-unloading ships specified in 1.3.1(19), Part B are			Self-unloading ships specified in 1.3.1(19), Part B are	Reference correction
to be in	n accordance with the following $(1)$ to $(3)$ .	to be in	n accordance with the following (1) to (3).	
(1)	14.1, Part 2-2, 3.2 and 11.1, Part 2-3, are to be	(1)	14.1, Part 2-2, 3.2 and 11.1, Part 2-3, are to be	
	applied.		applied.	
(2)	The side frames of self-unloading ships with single-	(2)	The side frames of self-unloading ships with single-	
	side structures in cargo hold areas are to comply with		side structures in cargo hold areas are to comply with	
	IACS Unified Requirement S12, as may be amended.		IACS Unified Requirement S12, as may be amended.	
(3)	For self-unloading ships to which Annex 1.1, Part 2-	(3)	For self-unloading ships to which Annex 1.1	
	2 "Additional Requirements for Bulk Carriers in		"Additional Requirements for Bulk Carriers in	
	Chapter XII of the SOLAS Convention", Chapter 1,		Chapter XII of the SOLAS Convention", Chapter	
	Part 2-2_applies according to 1.1.1.2, regardless of		1, Part 2-2 applies according to 1.1.1.2, regardless of	
	Annexes A3An3. and A5An5. when applying said		Annexes A3 and A5 when applying said Annex 1.1,	
	Annex 1.1, in cases where self-unloading ships with		in cases where self-unloading ships with unloading	
	unloading systems that do not maintain		systems that do not maintain watertightness, the	
	watertightness, the combination loads acting on the		combination loads acting on the bulkheads in the	
	bulkheads in the flooded conditions are to be		flooded conditions are to be considered using the	
	considered using the extent to which the flooding may		extent to which the flooding may occur.	
	occur.			

# Rules for the survey and construction of steel ships Part C Part 2-6 Chapter 4 4.7.2.1

Correction	Correction Present	
1 The concentrated loads due to the wheels of the vehicle are to be considered as loads for car decks on the	1 The concentrated loads due to the wheels of the vehicle are to be considered as loads for car decks on the beams	Wording correction
beamsstiffeners attached to the car decks, in accordance with	attached to the car decks, in accordance with the following	
the following formula.	formula.	
$P_{CDK} = P_{Wh-max} \cdot (1 + C_{CDK})$	$P_{CDK} = P_{Wh-max} \cdot (1 + C_{CDK})$	
$P_{Wh-max}$ : Designed maximum wheel load	$P_{Wh-max}$ : Designed maximum wheel load	
(kN). When the wheel load is given in units of $t$ ,	(kN). When the wheel load is given in units of $t$ ,	
multiply this value by 9.81.	multiply this value by 9.81.	
$C_{CDK}$ : As given by the following formula:	$C_{CDK}$ : As given by the following formula:	
$C_{CDK} = C_{WDz} \frac{a_{Ze-CDK}}{g}$	$C_{CDK} = C_{WDZ} \frac{a_{Ze-CDK}}{g}$	
$C_{WDz}$ : Coefficient related to load	$C_{WDz}$ : Coefficient related to load	
condition, as specified in Table 4.4.2-8, Part	condition, as specified in Table 4.4.2-8, Part	
1.	1.	
$a_{Ze-CDK}$ : Envelope acceleration $(m/s^2)$ in the	$a_{Ze-CDK}$ : Envelope acceleration $(m/s^2)$ in the	
vertical direction at the centre line of the car	vertical direction at the centre line of the car	
deck under consideration, obtained from the	deck under consideration, obtained from the	
formula specified in 4.2.4.1, Part 1. Further,	formula specified in 4.2.4.1, Part 1. Further,	
the centre of gravity in the longitudinal direction of the car deck under consideration	the centre of gravity in the longitudinal direction of the car deck under consideration	
is taken as the centre of the distance between	is taken as the centre of the distance between	
support points for beamsstiffeners on the car	support points for beams on the car deck	
deck accounted for.	accounted for.	
2 The load to be considered in the primary supporting	2 The load to be considered in the primary supporting	
members attached to the movable car deck $P_{LCDK}$ ( $kN/m^2$ ) is to	members attached to the movable car deck $P_{LCDK}$ ( $kN/m^2$ ) is to	
be in accordance with the following formula:	be in accordance with the following formula:	
$P_{LCDK} = \left(P_{LCDK\_d} + w_{LCDK}\right) \cdot \left(1 + C_{CDK}\right)$	$P_{LCDK} = \left(P_{LCDK\_d} + w_{LCDK}\right) \cdot \left(1 + C_{CDK}\right)$	
$P_{LCDK_d}$ : Design deck load ( $kN/m^2$ )	$P_{LCDK_d}$ : Design deck load ( $kN/m^2$ )	
$W_{LCDK}$ : Deck dead weight $(kN/m^2)$ per unit area	$W_{LCDK}$ : Deck dead weight ( $kN/m^2$ ) per unit area	
$C_{CDK}$ : As specified in -1 above.	$C_{CDK}$ : As specified in -1 above.	

#### Rules for the survey and construction of steel ships Part C Part 2-6 Chapter 8 8.3.1.1

Correction	Present	Note
The net scantling approach specified in 3.3, Part 1 is	The net scantling approach specified in 3.3, Part 1 is	Reference correction
to be applied to members to be assessed in strength	to be applied to members to be assessed in strength	
assessments of the bottom construction specified in 8.4 with	assessments of the bottom construction specified in 8.4 with	
regard to the plate thickness in structural models and buckling	regard to the plate thickness in structural models and buckling	
strength assessments specified in <b>8.4.4</b> <u>3.2</u> . The gross scantling	strength assessments specified in 8.4.4. The gross scantling is	
is to be applied in members other than the above.	to be applied in members other than the above.	

#### Rules for the survey and construction of steel ships Part C Part 2-6 Chapter 8 8.4.2.2-1

Correction	Present	Note
1 Where analysis in which the lateral loads are applied	1 Where analysis in which the lateral loads are applied	Reference correction
is carried out, the boundary conditions are to be in accordance	is carried out, the boundary conditions are to be in accordance	
with the following (1) to (3) as shown in Fig. 8.4.2-12.	with the following (1) to (3) as shown in Fig. 8.4.2-1.	

# Rules for the survey and construction of steel ships Part C Part 2-6 Chapter 10 10.1.1.1

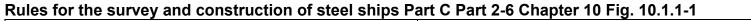
Correction	Present	Note
1 Plates and <u>beamsstiffeners</u> on car decks are to be accessed according to the conditions described in (1) and (2)	<b>1</b> Plates and beams on car decks are to be accessed according to the conditions described in (1) and (2) below.	Wording correction
below.		
(1) Maximum load condition	(1) Maximum load condition	
(2) Harbour condition (for forklifts and other vehicles	(2) Harbour condition (for forklifts and other vehicles	
only used for cargo handling in harbours)	only used for cargo handling in harbours)	
2 The concentrated load from vehicles is to be taken into	2 The concentrated load from vehicles is to be taken into	
consideration for decks loaded with wheeled vehicles and	consideration for decks loaded with wheeled vehicles and	
beamsstiffeners installed on decks.	beams installed on decks.	

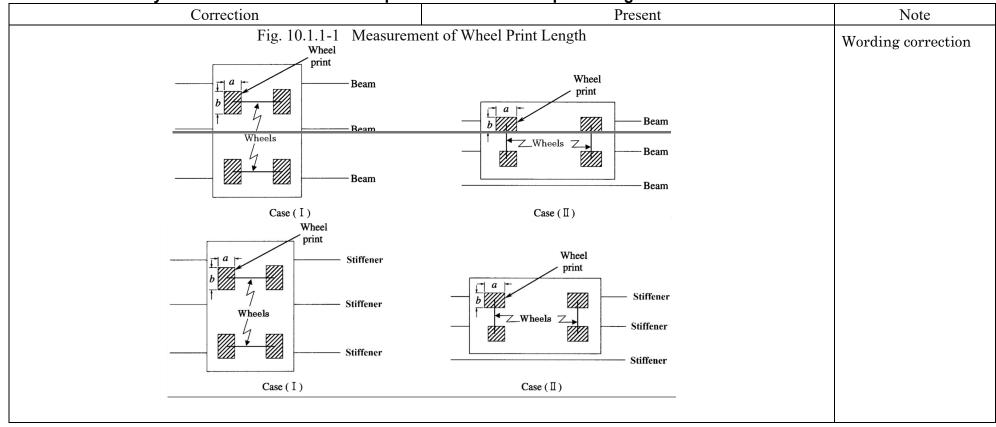
# Rules for the survey and construction of steel ships Part C Part 2-6 Chapter 10 10.1.1.2

Editorial Correction for Technical Rules and Guidance

$$\begin{split} & \mathsf{M}_{i} \\ &= \frac{1}{15} \left\{ \sum_{i=1}^{N} 4^{p} _{ia} _{i} \left[ 1 - \left( \frac{a}{\ell} \right)^{2} \right] \right\} \\ &+ \sum_{j=1}^{N} p_{xj} a_{xj} \left( 1 - \frac{a_{xj}}{\ell} \right)^{2} \left( 7 - 5 - \frac{a_{xj}}{\ell} \right) - \sum_{k=1}^{N} p_{xk} \left( \ell - a_{xk} \right) \left[ 1 - \left( \frac{\ell - a_{xk}}{\ell} \right)^{2} \right] \right\} \\ &+ \sum_{j=1}^{N} p_{xj} a_{xj} \left( 1 - \frac{a_{xj}}{\ell} \right)^{2} \left( 7 - 5 - \frac{a_{xj}}{\ell} \right) - \sum_{k=1}^{N} p_{xk} \left( \ell - a_{xk} \right) \left[ 1 - \left( \frac{\ell - a_{xk}}{\ell} \right)^{2} \right] \right\} \\ &+ \sum_{j=1}^{N} p_{xj} a_{xj} \left( 1 - \frac{a_{xj}}{\ell} \right)^{2} \left( 2 + 5 - \frac{a_{xj}}{\ell} \right) \\ &+ \sum_{k=1}^{N} p_{xk} \left( \ell - a_{xk} \right) \left[ 1 - \left( \frac{\ell - a_{xk}}{\ell} \right)^{2} \right] \right\} \\ &+ \sum_{k=1}^{N} p_{xk} \left( \ell - a_{xk} \right) \left[ 1 - \left( \frac{\ell - a_{xk}}{\ell} \right)^{2} \right] \\ &+ \sum_{k=1}^{N} p_{xk} \left( \ell - a_{xk} \right) \left[ 1 - \left( \frac{\ell - a_{xk}}{\ell} \right)^{2} \right] \right\} \\ &+ \sum_{k=1}^{N} p_{xk} \left( \ell - a_{xk} \right) \left[ 1 - \left( \frac{\ell - a_{xk}}{\ell} \right)^{2} \right] \\ &+ \sum_{k=1}^{N} p_{xk} \left( \ell - a_{xk} \right) \left[ 1 - \left( \frac{\ell - a_{xk}}{\ell} \right)^{2} \right] \right\} \\ &+ \sum_{k=1}^{N} p_{xk} \left( \ell - a_{xk} \right) \left[ 1 - \left( \frac{\ell - a_{xk}}{\ell} \right)^{2} \right] \\ &+ \sum_{k=1}^{N} p_{xk} \left( \ell - a_{xk} \right) \left[ 1 - \left( \frac{\ell - a_{xk}}{\ell} \right)^{2} \right] \\ &+ \sum_{k=1}^{N} p_{xk} \left( \ell - a_{xk} \right) \left[ 1 - \left( \frac{\ell - a_{xk}}{\ell} \right)^{2} \right] \\ &+ \sum_{k=1}^{N} p_{xk} \left( \ell - a_{xk} \right) \left[ 1 - \left( \frac{\ell - a_{xk}}{\ell} \right)^{2} \right] \\ &+ \sum_{k=1}^{N} p_{xk} \left( \ell - a_{xk} \right) \left[ 1 - \left( \frac{\ell - a_{xk}}{\ell} \right)^{2} \right] \\ &+ \sum_{k=1}^{N} p_{xk} \left( \ell - a_{xk} \right) \left[ 1 - \left( \frac{\ell - a_{xk}}{\ell} \right)^{2} \right] \\ &+ \sum_{k=1}^{N} p_{xk} \left( \ell - a_{xk} \right) \left[ 1 - \left( \frac{\ell - a_{xk}}{\ell} \right)^{2} \right] \\ &+ \sum_{k=1}^{N} p_{xk} \left( \ell - a_{xk} \right) \left[ 1 - \left( \frac{\ell - a_{xk}}{\ell} \right)^{2} \right] \\ &+ \sum_{k=1}^{N} p_{xk} \left( \ell - a_{xk} \right) \left[ 1 - \left( \frac{\ell - a_{xk}}{\ell} \right)^{2} \right] \\ &+ \sum_{k=1}^{N} p_{xk} \left( \ell - a_{xk} \right) \left[ 1 - \left( \frac{\ell - a_{xk}}{\ell} \right)^{2} \right] \\ &+ \sum_{k=1}^{N} p_{xk} \left( \ell - a_{xk} \right) \left[ 1 - \left( \frac{\ell - a_{xk}}{\ell} \right)^{2} \right] \\ &+ \sum_{k=1}^{N} p_{xk} \left( \ell - a_{xk} \right) \left[ 1 - \left( \frac{\ell - a_{xk}}{\ell} \right)^{2} \right] \\ &+ \sum_{k=1}^{N} p_{xk} \left( \ell - a_{xk} \right) \left[ 1 - \left( \frac{\ell - a_{xk}}{\ell} \right)^{2} \right] \\ &+ \sum_{k=1}^{N} p_{xk} \left( \ell - a_{xk} \right) \left[ 1 - \left( \frac{\ell - a_{xk}}{\ell} \right)^{2} \right] \\ &+ \sum_{k=1}^{N} p_{xk} \left( \ell - \frac{\ell - a_{xk}}{\ell} \right) \left$$

	10.1.1-2)
Distance (m) from each support	$\alpha_{Ii}, \alpha_{IIj}, \alpha_{IIk}$ : Distance ( <i>m</i> ) from each support
point to the point of action of	point to the point of action of
wheel load (See Fig. 10.1.1-2),	wheel load (See Fig. 10.1.1-2),
when wheels are so arranged that	when wheels are so arranged that
<i>M</i> may be at its maximum value.	<i>M</i> may be at its maximum value.
Number of wheel loads	$N_I, N_{II}, N_{III}$ : Number of wheel loads
ach span	between each span
e obtained from following the	$R_{II}$ : The value obtained from following the
	formula
$P_{\Pi i}(\ell - \alpha_{\Pi i})$	$R_{II} = \frac{1}{\alpha} \sum P_{III} \left( \ell - \alpha_{III} \right)$
1	$\ell \sum_{j=1}^{j}$
point to the point of action of wheel load ( <i>See</i> Fig. 10.1.1-2), when wheels are so arranged that <i>M</i> may be at its maximum value. Number of wheel loads ach span	point to the point of action of wheel load (See Fig. 10.1.1-2), when wheels are so arranged that M may be at its maximum value. $N_I, N_{II}, N_{III}$ : Number of wheel loads between each span $R_{II}$ : The value obtained from following the





# Rules for the survey and construction of steel ships Part C Part 2-6 Chapter 10 Table 10.1.1-2

Correction		Pres	Note	
Table 10.1.1-2 Value of $C_s$		Table 10.1.1-2	Wording correction	
	$C_s$		$C_s$	
Longitudinal beamsLongitudinals of strength decks	$1.0 - \frac{ \sigma_{BM} }{\sigma_Y}$	Longitudinal beams of strength decks	$1.0 - \frac{ \sigma_{BM} }{\sigma_Y}$	
Other than those above	1.0	Other than those above	1.0	
weight conditions.	Part 1 under maximum lowing formula under	weight conditions.	Part 1 under maximum owing formula under	
harbour conditions. $\sigma_{BM} = \left  \frac{M_{PT}}{I_{Vertical}} \right $	$(z-z_B)   \times 10^5$	harbour conditions. $\sigma_{BM} = \left  \frac{M_{PT}}{I_{Vertical}} \right $		
$M_{PT}$ : The in the hard	e vertical bending moment bour, according to 4.3.1.1,	$M_{PT}$ : The in the harbor		
horizontal transection	ment of inertia around the neutral axis of the of the member under ion (net scantling approach)	Part 1. <i>I<sub>Vertical</sub></i> : The mon horizontal transection consideration approach) (		
point of consideration		z: Z coordinat point of consideratio		
axis of consideration	$\operatorname{on}(m)$	axis of consideratio	$\operatorname{pn}(m)$	
Further, the coordinate system and load prescribed in 1.4.3.5, Part 1 and 3.7.1.	-	Further, the coordinate system and load prescribed in 1.4.3.5, Part 1 and 3.7.1.3	-	

### Rules for the survey and construction of steel ships Part C Part 2-6 Chapter 10 10.1.1.2-2

Correction	Present	Note
2 Scantlings of <u>beamsstiffeners</u> of car decks may be	2 Scantlings of beams of car decks may be determined	Wording correction
determined by the direct calculation methods shown below.	by the direct calculation methods shown below.	worung correction
(1) The model of structures and the method of calculation	(1) The model of structures and the method of calculation	
are to be those approved by the Society.	are to be those approved by the Society.	
(2) Loads are in accordance to 4.7.2.1 and 4.7.3.1.	(2) Loads are in accordance to 4.7.2.1 and 4.7.3.1.	
(3) The allowable stresses for calculation of the section	(3) The allowable stresses for calculation of the section	
modulus are to be as shown in Table 10.1.1-3.	modulus are to be as shown in Table 10.1.1-3.	

### Rules for the survey and construction of steel ships Part C Part 2-6 Chapter 10 Table 10.1.1-3

	Correction		Present		Note
Table 10.1.1-3 Allowable Stress (N/mm <sup>2</sup> )			<i>mm</i> <sup>2</sup> )	Wording correction	
	Members	Maximum loa	ad condition	Harbour condition (vehicles used for cargo handling only)	
	Longitudinal beamsLongitudinals of strength decks	$C_{S}c$	$\sigma_Y$	$\frac{1}{1.2}C_S\sigma_Y$	
	Other than those above	$\sigma_Y$	Y	$\frac{1}{1.2}\sigma_{Y}$	
	Notes: $C_s$ : Coefficient related to the infl $\sigma_Y$ : Standard yield stress ( <i>N/mm<sup>2</sup></i> )		rce, according to	Table 10.1.1-2.	

#### Rules for the survey and construction of steel ships Part C Part 2-6 Chapter 10 10.1.1.3

Correction	Present	Note
The thickness of car deck is to be in accordance with	The thickness of car deck is to be in accordance with	Wording correction
(1) or (2) below.	(1) or (2) below.	
(1) Where the distance between the centres of wheel	(1) Where the distance between the centres of wheel	
prints in a panel is not less than $2S + a$ :	prints in a panel is not less than $2S + a$ :	
$C\sqrt{\frac{2S-b'}{2S+a} \cdot P \times 10^3}$ (mm)	$C\sqrt{\frac{2S-b'}{2S+a} \cdot P \times 10^3}$ (mm)	
S: Beam Stiffener spacing $(m)$	S: Beam spacing $(m)$	

- *P*: The wheel load at each support point, as specified in 4.7.2.1 and 4.7.3.1. However, when b > S, the value is to be multiplied by S/b.
- b': b or S, whichever is the smaller (m)
- *b*: Length (*m*) of wheel print measured at right angle to beamsstiffeners. (*See* Fig. 10.1.1-1)
- a: Length (m) of wheel print measured in parallel with <u>beamsstiffeners</u>. (See Fig. 10.1.1-1)

However, for vehicles with ordinary pneumatic tires, values of *a* and *b* in **Table 10.1.1-1** may be used.

C: Coefficient determined as follows.

$$C = \frac{1}{2} \sqrt{\frac{C_{coll}C_{load}}{C_a \sigma_Y}}$$

 $C_{coll}$ : The safety factor in relation to the plastic collapse load of the plate, which is 1.7  $C_{load}$ : The safety factor in relation to dynamical influence caused by ship motion, which is 1.0 under maximum load conditions, and 1.2 under harbour conditions (vehicles used for cargo handling only).

- C<sub>a</sub>: Axial force influence coefficient, according to Table 10.1.1-4.
- (2) Where the distance between centres of wheel prints in a panel is less than 2S + a (Fig. 10.1.1-3):

$$C \sqrt{\frac{2S - b'}{2S + a + e}} \cdot nP \times 10^{3} (mm)$$

Where: C, S, a, b' and P: As prescribed in (1) above.

- e: Sum of distances (m) between centres of wheel prints where wheels are placed side by side at a spacing of less than 2S + a in one panel. (See Fig. 10.1.1-3)
- n: Number of wheel loads in the range of e

- *P*: The wheel load at each support point, as specified in 4.7.2.1 and 4.7.3.1. However, when b > S, the value is to be multiplied by S/b.
- b': b or S, whichever is the smaller (m)
- *b*: Length (*m*) of wheel print measured at right angle to beams. (*See* Fig. 10.1.1-1)
- a: Length (*m*) of wheel print measured in parallel with beams. (*See* Fig. 10.1.1-1)

However, for vehicles with ordinary pneumatic tires, values of a and b in Table 10.1.1-1 may be used.

C: Coefficient determined as follows.

$$C = \frac{1}{2} \sqrt{\frac{C_{coll}C_{load}}{C_a \sigma_Y}}$$

- $C_{coll}$ : The safety factor in relation to the plastic collapse load of the plate, which is 1.7
- $C_{load}$ : The safety factor in relation to dynamical influence caused by ship motion, which is 1.0 under maximum load conditions, and 1.2 under harbour conditions (vehicles used for cargo handling only).
- $C_a$ : Axial force influence coefficient, according to Table 10.1.1-4.
- Where the distance between centres of wheel prints in a panel is less than 2S + a (Fig. 10.1.1-3):

$$C \sqrt{\frac{2S - b'}{2S + a + e} \cdot nP \times 10^3 (mm)}$$

Where: C, S, a, b' and P: As prescribed in (1) above.

- e: Sum of distances (m) between centres of wheel prints where wheels are placed side by side at a spacing of less than 2S + a in one panel. (See Fig. 10.1.1-3)
- *n*: Number of wheel loads in the range of *e*

(2)

### Rules for the survey and construction of steel ships Part C Part 2-6 Chapter 12 12.1.1.1

Correction	Present	Note
12.1.1.1 Deck Beams Supporting VehiclesStiffeners of Car Decks	12.1.1.1 Deck Beams Supporting Vehicles	Wording correction
1 The impact of the dynamic load caused by vehicular	1 The impact of the dynamic load caused by vehicular	
traffic is to be taken into account when determining the kind	traffic is to be taken into account when determining the kind	
of stiffeners used and the fillet welding method for connecting	of stiffeners used and the fillet welding method for connecting	
those stiffeners to the car deck.	those stiffeners to the car deck.	
2 The method used to weld the stiffeners to the car deck	2 The method used to weld the stiffeners to the car deck	
is to be at least in accordance with the requirements specified	is to be at least in accordance with the requirements specified	
in Table 12.1.1-1 according to the type of stiffener and	in Table 12.1.1-1 according to the type of stiffener and	
frequency of vehicular traffic.	frequency of vehicular traffic.	
3 Notwithstanding -2 above, the requirement stipulated	3 Notwithstanding -2 above, the requirement stipulated	
in 12.2.1.3-4, Part 1 of the Rules applies. Where continuous	in 12.2.1.3-4, Part 1 of the Rules applies. Where continuous	
welding is carried out only on one side, at least F2 welding is welding is carried out only on one side, at least F2 welding is		
to be carried out on the other side, as specified below.	to be carried out on the other side, as specified below.	
(1) Up to $0.1\ell$ from the end of the beams	(1) Up to $0.1\ell$ from the end of the beams	
(2) $0.1\ell$ on either side of the intersection of beams and	(2) $0.1\ell$ on either side of the intersection of beams and	
girdersstiffeners	girders	
(2) 0.1 $\ell$ on either side of the intersection of stiffeners and		
girders		

# Rules for the survey and construction of steel ships Part C Part 2-7 Chapter 2 2.1.1.2

Correction	Present	Note
1 All areas where there are cargo oil pumps and cargo		Reference correction
oil piping are to be segregated by an air-tight bulkhead from	oil piping are to be segregated by an air-tight bulkhead from	
areas where stoves, boilers, propelling machinery, electric	areas where stoves, boilers, propelling machinery, electric	
installations other than those of explosion-proof type in	installations other than those of explosion-proof type in	
accordance with 4.2.4 and 4.3.3, Part H or machinery with a	accordance with 4.2.4 and 4.3.3, Part H or machinery with a	
source of ignition is normally present. However, for oil	source of ignition is normally present. However, for oil	
tankers carrying cargo oil having a flash point above 60 °C,	tankers carrying cargo oil having a flash point above 60 °C,	
the requirements may be suitably modified.	the requirements may be suitably modified.	
2 Cofferdams which are not utilized as main or auxiliary	2 Cofferdams which are not utilized as main or auxiliary	

pump rooms and compartments utilized as cofferdams under	pump rooms and compartments utilized as cofferdams under	
the freeboard deck are to meet the requirements for the	the freeboard deck are to meet the requirements for the	
strength of deep tanks. The bulkhead between the main pump	strength of deep tanks. The bulkhead between the main pump	
room and engine room is to have structural scantlings of a	room and engine room is to have structural scantlings of a	
watertight bulkhead in ships of not less than 100 <i>m</i> in length	watertight bulkhead in ships of not less than $100 m$ in length	
$L_c$ and of an airtight bulkhead in ships of less than 100 m in	$L_{c}$ and of an airtight bulkhead in ships of less than 100 m in	
length $L_C$ .	length $L_C$ .	

# Rules for the survey and construction of steel ships Part C Part 2-7 Chapter 4 4.2.2.1-1

Correction	Present	Note
1 When applying 4.4.2, Part 1, the parameters $(GM, z_G)$		Reference correction
etc.) required to calculate pressure dynamic pressure due to	etc.) required to calculate pressure dynamic pressure due to	
cargo are to be values in the full load condition regardless o	f cargo are to be values in the full load condition regardless of	
the cargo density to be considered. However, the values in	the cargo density to be considered. However, the values in	
Table 4.2.2-21 may be used if the parameters are no	Table 4.2.2-2 may be used if the parameters are not available.	
available.		

# Rules for the survey and construction of steel ships Part C Part 2-7 Chapter 6 6.1.2.3

Correction	Present	Note
(Omitted) $F_{a} = (\rho_{L}V_{t} \times 10^{3} + m_{T})(g + a_{ze}) (N)$ $\rho_{L}: \text{ Cargo density } (ton/m^{3})$ $V_{t}: \text{ Tank volume } (m^{3}) \text{ supported by the supporting structure under consideration}$ $m_{t}: \text{ Mass of tank, insulation and equipment}$ $(kg)$ $a_{ze}: Vertical envelope acceleration acting on the centre of gravity of the cargo tank under consideration, according to 4.2.2.1, Part 2-7 (Omitted)$	supporting structure under consideration $m_t$ : Mass of tank, insulation and equipment (kg) $a_{Ze}$ : Vertical envelope acceleration acting on	Reference correction

#### Rules for the survey and construction of steel ships Part C Part 2-7 Chapter 14 14.1.2.3

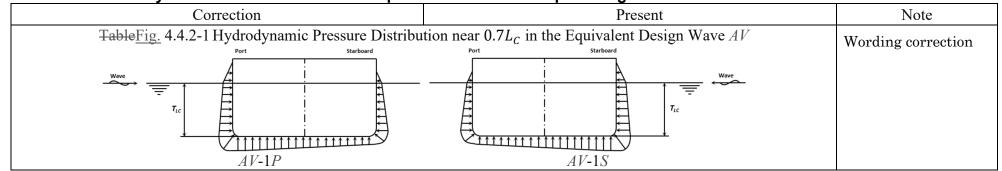
Correction	Present	Note
1 Materials used for tank cleaning hatch covers provided	1 Materials used for tank cleaning hatch covers provided	Wording correction
for cargo oil tanks are to be as follows.	for cargo oil tanks are to be as follows.	there are a second s
(1) Covers may be constructed of brass, bronze or steel,	(1) Covers may be constructed of brass, bronze or steel,	
but are not to be constructed of aluminium.	but are not to be constructed of aluminium.	
(2) Synthetic materials such as glass-fibre reinforced	(2) Synthetic materials such as glass-fibre reinforced	
plastics materials may be used only when all the	plastics materials may be used only when all the	
requirements under - <u>14.1 above.2.2</u> can be met.	requirements under -1 above can be met.	
(Omitted)	(Omitted)	

#### Rules for the survey and construction of steel ships Part C Part 2-8 Chapter 5 5.1.1.1

Correction	Present	Note
In the assessment decision specified in 5.4.2.32, Part	In the assessment decision specified in 5.4.2.3, Part 1,	Reference correction
1, the coefficient $\gamma_{DB}$ that takes into account the effect of	the coefficient $\gamma_{DB}$ that takes into account the effect of double	
double bottom bending is as follows.	bottom bending is as follows.	
$\gamma_{DB} = 1.25$	$\gamma_{DB} = 1.25$	

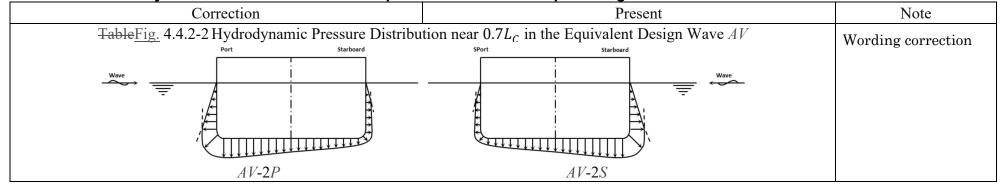
### Rules for the survey and construction of steel ships Part C Part 2-9 Chapter 4 Table 4.3.5-2

Correction	Present	Note
Table 4.3.5-2 Static	Pressure in Collision Condition	Reference correction
Stat	ic pressure P <sub>LS-COL</sub>	
ρ_	$g(z_{top} - z) + P_0$	
Notes:		
P	ghest point in the cargo tank (m)	
$P_0$ : Design vapour pressure 1.1.45, Part 4 <u>N</u> .	$(kN/m^2)$ , not to be less than MARVS specified in	



#### Rules for the survey and construction of steel ships Part C Part 2-9 Chapter 4 Fig. 4.4.2-1

#### Rules for the survey and construction of steel ships Part C Part 2-9 Chapter 4 Fig. 4.4.2-2



#### Rules for the survey and construction of steel ships Part C Part 2-9 Chapter 5 5.1.1.1

	Correction	Present	Note
	In the assessment decision specified in 5.4.2.32 in	In the assessment decision specified in 5.4.2.3 in Part	Reference correction
Pa	art 1, the coefficient $\gamma_{DB}$ that takes into account the effect of	1, the coefficient $\gamma_{DB}$ that takes into account the effect of	
do	puble bottom bending is as follows.	double bottom bending is as follows.	
	$\gamma_{DB} = 1.15$	$\gamma_{DB} = 1.15$	

#### Rules for the survey and construction of steel ships Part C Part 2-9 Chapter 8 8.4.2.2

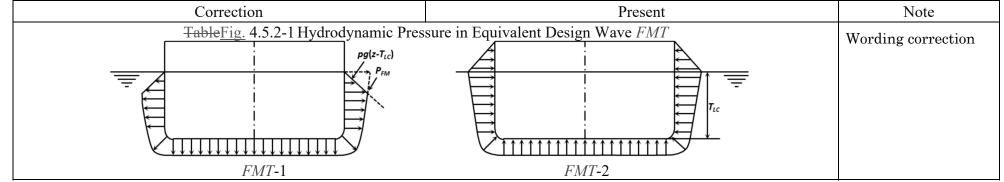
Correction	Present	Note
In applying 8.5.2, Part 1, the vertical bending moment	In applying 8.5.2, Part 1, the vertical bending moment	Wording correction
and horizontal bending moment act on the target hold are to	and horizontal bending moment act on the target hold are to	wording correction
be adjusted in accordance with the method specified in 8.4.2	be adjusted in accordance with the method specified in 8.4.2	
in, Part 2-8.	in Part 2-8.	

#### Rules for the survey and construction of steel ships Part C Part 2-9 Chapter 9 9.6.1.1-2

Correction	Present	Note
1 Fatigue strength assessment is to be in accordance with	1 Fatigue strength assessment is to be in accordance with	Wording correction
9.5, Part 1.	9.5, Part 1.	to or using correction
2 Notwithstanding the requirement in -1 above, the	2 Notwithstanding the requirement in -1 above, the	
fatigue strength assessment criteria is to be in accordance with	fatigue strength assessment criteria is to be in accordance with	
the following formula:	the following formula:	
$\eta \cdot C_{ST} \cdot D \le 1.0$	$\eta \cdot C_{ST} \cdot D \le 1.0$	
$\eta$ : Correction factor of fatigue damage based on	$\eta$ : Correction factor of fatigue damage based on	
fatigue load used in the assessment, as given in	fatigue load used in the assessment, as given in	
table <u>Table</u> 9.5.5-1, Part 1.	table 9.5.5-1, Part 1.	
$C_{ST}$ : Correction coefficient of fatigue damage, to be	$C_{ST}$ : Correction coefficient of fatigue damage, to be	
obtained from the followings according to the	obtained from the followings according to the	
assessment target.	assessment target.	
For hull structure, cargo tank structure, supports	For hull structure, cargo tank structure, supports	
in vertical direction and supports in transverse	in vertical direction and supports in transverse	
direction (upper part of cargo tank): 1.0	direction (upper part of cargo tank): 1.0	
For supports in transverse direction (lower part	For supports in transverse direction (lower part	
of cargo tank): 1.1	of cargo tank): 1.1	

### Rules for the survey and construction of steel ships Part C Part 2-10 Chapter 5 5.1.1.1

Correction	Present	Note
In the assessment decision specified in 5.4.2.32 in	In the assessment decision specified in 5.4.2.3 in Part	Reference correction
<b>Part 1</b> , the coefficient $\gamma_{DB}$ that takes into account the effect of	1, the coefficient $\gamma_{DB}$ that takes into account the effect of	
double bottom bending is as follows.	double bottom bending is as follows.	
$\gamma_{DB} = 1.15$	$\gamma_{DB} = 1.15$	



### Rules for the survey and construction of steel ships Part C Part 2-11 Chapter 4 Fig. 4.5.2.1

#### Rules for the survey and construction of steel ships Part C Part 2-11 Chapter 5 5.1.1.1

Correction	Present	Note
In the assessment decision specified in 5.4.2.32 in	1	Reference correction
<b>Part 1</b> , the coefficient $\gamma_{DB}$ that takes into account the effect of	1, the coefficient $\gamma_{DB}$ that takes into account the effect of	
double bottom bending is as follows.	double bottom bending is as follows.	
$\gamma_{DB} = 1.15$	$\gamma_{DB} = 1.15$	

# Rules for the survey and construction of steel ships Part CSR-B Chapter 2 Section 1 2.1.2

Correction	Present	Note
Ref. SOLAS Ch. II-1, Part B-2, Reg. 12	Ref. SOLAS Ch. II-1, Part B-2, Reg. 12	Reference correction
Where any part of the ship below the waterline extends	Where any part of the ship below the waterline extends	
forward of the forward perpendicular, e.g. a bulbous bow, the	forward of the forward perpendicular, e.g. a bulbous bow, the	
distances, in metres, stipulated in [2.1.1] are to be measured	distances, in metres, stipulated in [2.1.1] are to be measured	
from a point either:	from a point either:	
• at the mid-length of such extension, or	• at the mid-length of such extension, or	
• at a distance 1.5% of the length $L_{LL}$ of the ship forward	• at a distance 1.5% of the length $L_{LL}$ of the ship forward	
of the forward perpendicular, or	of the forward perpendicular, or	
• at a distance 3 <i>m</i> forward of the forward perpendicular,	• at a distance 3 <i>m</i> forward of the forward perpendicular,	
whichever gives the smallest measurement.	whichever gives the smallest measurement.	

### Rules for the survey and construction of steel ships Part CSR-B Chapter 4 Section 6 2.2.1

Correction	Present	Note
The inertial pressure due to liquid $p_{BW}$ , in $kN/m^2$ , for each	The inertial pressure due to liquid $p_{BW}$ , in $kN/m^2$ , for each	Reference correction
load case is given as follows. When checking ballast water	load case is given as follows. When checking ballast water	
exchange operations by means of the flow through method,	exchange operations by means of the flow through method,	
the inertial pressure due to ballast water is not to be considered	the inertial pressure due to ballast water is not to be considered	
for local strength assessments and direct strength analysis.	for local strength assessments and direct strength analysis.	
• for load case H: $p_{BW} = \rho_L \left[ a_Z (z_{TOP} - z) + a_X (x - x_B) \right]$	• for load case H: $p_{BW} = \rho_L \left[ a_Z (z_{TOP} - z) + a_X (x - x_B) \right]$	
$(x - x_B)$ is to be taken as $0.75 - \mu 75\ell_H$ in the load case	$(x - x_B)$ is to be taken as 0.75 <i>H</i> in the load case H1 or	
H1 or $-0.75 - H_{15}\ell_{H}$ in the load case H2 for local	-0.75 $_H$ in the load case H2 for local strength by Ch 6	
strength by Ch6 and fatigue check for longitudinal	and fatigue check for longitudinal stiffeners by Ch 8	
stiffeners by Ch 8		
• for load case F: $p_{BW} = 0$	• for load case F: $p_{BW} = 0$	
• for load cases R and P: $p_{BW} = \rho_L [a_Z(z_B - z) + a_Y(y_B)]$	• for load cases R and P: $p_{BW} = \rho_L [a_Z(z_B - z) + a_Y(y_B - z_B)]$	
$-y_B)]$	$-y_B$ )]	
where:	where:	
$x_B$ : X co-ordinate, in m, of the aft end of the tank	$x_B$ : X co-ordinate, in m, of the aft end of the tank	
when the bow side is downward, or of the fore	when the bow side is downward, or of the fore	
end of the tank when the bow side is upward, as	end of the tank when the bow side is upward, as	
defined in Fig. 3	defined in Fig. 3	

$y_B$ : Y co-ordinate, in m, of the tank top located at the	we Vac ardinate in m of the tank tan located at the	
most lee side when the weather side is	$y_B$ : <i>Y</i> co-ordinate, in <i>m</i> , of the tank top located at the most lee side when the weather side is	
downward, or of the most weather side when the	downward, or of the most weather side when the	
weather side is upward, as defined in Fig. 3	weather side is upward, as defined in Fig. 3	
$z_B$ : Z co-ordinate of the following point:	$z_B$ : Z co-ordinate of the following point:	
• for completely filled spaces: the tank top	• for completely filled spaces: the tank top	
<ul> <li>for ballast hold: the top of the hatch coaming</li> </ul>	• for ballast hold: the top of the hatch coaming	
The reference point $B$ is defined as the upper most point	The reference point $B$ is defined as the upper most point	
after rotation by the angle $\varphi$ between the vertical axis and the	after rotation by the angle $\varphi$ between the vertical axis and the	
global acceleration vector $\vec{A}_{G}$ shown in Fig. 3. $\varphi$ is obtained	global acceleration vector $\vec{A}_{G}$ shown in Fig. 3. $\varphi$ is obtained	
from the following formulae:	from the following formulae:	
• load cases H1 and H2:	• load cases H1 and H2:	
$\varphi = \tan^{-1}(\frac{ a_X }{g\cos\phi + a_Z})$	$\varphi = \tan^{-1}(\frac{ a_X }{g\cos\phi + a_Z})$	
<ul> <li>load cases R1(P1) and R2(P2):</li> </ul>	<ul> <li>load cases R1(P1) and R2(P2):</li> </ul>	
$\varphi = \tan^{-1}(\frac{ a_Y }{g\cos\theta + a_Z})$	$\varphi = \tan^{-1}(\frac{ a_Y }{g\cos\theta + a_Z})$	
where:	where:	
$\theta$ : Single roll amplitude, in <i>deg</i> , defined in Ch4 <u>Ch</u>	$\theta$ : Single roll amplitude, in <i>deg</i> , defined in Ch4, Sec	
<u>4</u> , Sec 2, 2.1.1	2, 2.1.1	
$\Phi$ : Single pitch amplitude, in <i>deg</i> , defined in Ch4 <u>Ch</u>	$\Phi$ : Single pitch amplitude, in <i>deg</i> , defined in Ch4,	
<u>4</u> , Sec 2, 2.2.1	Sec 2, 2.2.1	
The total pressure $(p_{BS} + p_{BW})$ is not to be negative.	The total pressure $(p_{BS} + p_{BW})$ is not to be negative.	

# Rules for the survey and construction of steel ships Part CSR-B Chapter 4 Section 7 3.7.1

Correction	Present	Note
Based on the design loading criteria for local strength, as	Based on the design loading criteria for local strength, as	Reference correction
given in 3.2 to 3.6 except 3.5.1, hold mass curves are to be	given in 3.2 to 3.6 except 3.5.1, hold mass curves are to be	
included in the loading manual and the loading instrument,	included in the loading manual and the loading instrument,	
showing maximum allowable and minimum required mass as	showing maximum allowable and minimum required mass as	
a function of draught in sea-going condition as well as during	a function of draught in sea-going condition as well as during	
loading and unloading in harbour. Hold mass curves are to be	loading and unloading in harbour. Hold mass curves are to be	
calculated according to Ch 4, AppAppendix 1.	calculated according to Ch 4, App 1.	

### Rules for the survey and construction of steel ships Part CSR-B Chapter 4 Section 7 4.3.1

Correction	Present	Note
The minimum required loading conditions for direct	The minimum required loading conditions for direct strength analysis, including vertical shear force analysis, are	Reference correction
defined in Ch 4, AppAppendix 2.	defined in Ch 4, App 2.	

#### Rules for the survey and construction of steel ships Part CSR-B Chapter 4 Section 7 4.3.2

Correction	Present	Note
The standard loading conditions for fatigue assessment are defined in Ch 4, AppAppendix 3.	The standard loading conditions for fatigue assessment are defined in Ch 4, App 3.	Reference correction

### Rules for the survey and construction of steel ships Part CSR-B Chapter 5 Section 2 2.2.1

Correction	Present	Note
The ultimate bending moment capacities of a hull girder	The ultimate bending moment capacities of a hull girder	Reference correction
transverse section, in hogging and sagging conditions, are	transverse section, in hogging and sagging conditions, are	
defined as the maximum values of the curve of bending	defined as the maximum values of the curve of bending	
moment capacity $M$ versus the curvature $\chi$ of the transverse	moment capacity $M$ versus the curvature $\chi$ of the transverse	
section considered (see Fig. 1).	section considered (see Fig. 1).	
The curvature $\chi$ is positive for hogging condition and	The curvature $\chi$ is positive for hogging condition and	
negative for sagging condition.	negative for sagging condition.	
The curve $M-\chi$ is to be obtained through an incremental-	The curve $M$ - $\chi$ is to be obtained through an incremental-	
iterative procedure, according to the criteria specified in	iterative procedure, according to the criteria specified in App	
App <u>Ch 5, Appendix</u> 1.	1.	

#### Rules for the survey and construction of steel ships Part CSR-B Chapter 6 Section 2 2.2.1

Correction	Present	Note
The net thickness of the web of ordinary stiffeners, in <i>mm</i> ,	The net thickness of the web of ordinary stiffeners, in <i>mm</i> ,	Reference correction
is to be not less than the greater of:	is to be not less than the greater of:	
• $t = 3.0 + 0.015L_2$	• $t = 3.0 + 0.015L_2$	
• 40% of the net required thickness of the attached	• 40% of the net required thickness of the attached	
plating, to be determined according to Ch-6, Sec-1.	plating, to be determined according to Ch.6, Sec.1.	

# Rules for the survey and construction of steel ships Part CSR-B Chapter 6 Section 2 2.5.2

Correction	Present	Note
2.5.2 Ordinary stiffeners located on inner bottom plating	2.5.2 Ordinary stiffeners located on inner bottom plating	Reference correction
The net section modulus $w$ , in $cm^3$ , and the net shear	The net section modulus $w$ , in $cm^3$ , and the net shear	
sectional area $A_{sh}$ , in $cm^2$ , of single span ordinary stiffeners	sectional area $A_{sh}$ , in $cm^2$ , of single span ordinary stiffeners	
located on inner bottom plating are to be not less than the	located on inner bottom plating are to be not less than the	
values obtained from the following formulae:	values obtained from the following formulae:	
$\int_{\mathcal{L}} \left\{ g \left( \cos(\mathcal{C}_{ZP} \Phi) \cos(\mathcal{C}_{ZR} \theta) \right) + a_Z \right\} F$	$w = K_3 \frac{\left\{g\left(\cos(C_{ZP}\Phi)\cos(C_{ZR}\theta)\right) + a_Z\right\}F}{8\lambda_s R_v}$	
$w = K_3 \frac{\{g(\cos(C_{ZP}\Phi)\cos(C_{ZR}\theta)) + a_Z\}F}{8\lambda_S R_Y}$	$W = K_3 \frac{8\lambda_S R_Y}{8\lambda_S R_Y}$	
$5\{g(\cos(C_{ZP}\Phi)\cos(C_{ZR}\theta)) + a_Z\}F$	$5\{g(\cos(C_{ZP}\Phi)\cos(C_{ZR}\theta)) + a_Z\}F$	
$A_{sh} = \frac{5\{g(\cos(C_{ZP}\phi)\cos(C_{ZR}\theta)) + a_Z\}F}{\tau_a \sin\phi} 10^{-3}$	$A_{sh} = \frac{5\{g(\cos(C_{ZP}\Phi)\cos(C_{ZR}\theta)) + a_Z\}F}{\tau_a \sin\phi} 10^{-3}$	
where:	where:	
$K_3$ : Coefficient defined in Table 1. When $n_2$ is	$K_3$ : Coefficient defined in Table 1. When $n_2$ is	
greater than 10, $K_3$ is to be taken equal to 2 /3	greater than 10, $K_3$ is to be taken equal to 2 /3	
$a_Z$ : Vertical acceleration, in $m/s^2$ , defined in Ch 6,	$a_Z$ : Vertical acceleration, in $m/s^2$ , defined in Ch 6,	
<del>Sec1<u>Sec 1</u>, 2.7.1</del> bis1	Sec1, 2.7.1 bis1	
$\Phi$ : Single pitch amplitude, in <i>deg</i> , defined in Ch 4,	$\Phi$ : Single pitch amplitude, in <i>deg</i> , defined in Ch 4,	
Sec 2, 2.2	Sec 2, 2.2	
$\theta$ : Single roll amplitude, in <i>deg</i> , defined in Ch 4,	$\theta$ : Single roll amplitude, in <i>deg</i> , defined in Ch 4,	
Sec 2, 2.1	Sec 2, 2.1	
$C_{ZP}, C_{ZR}$ : Load combination factor defined in	$C_{ZP}, C_{ZR}$ : Load combination factor defined in	
Ch 4, Sec 4, 2.2	Ch 4, Sec 4, 2.2	
F : Force, in kg, defined in Ch 6, Sec 1, 2.7.2	F : Force, in kg, defined in Ch 6, Sec 1, 2.7.2	
$\lambda_s$ : Coefficient defined in <b>Table 3</b>	$\lambda_s$ : Coefficient defined in <b>Table 3</b>	
$\phi$ :Angle, in <i>deg</i> , defined in 3.2.3	$\phi$ :Angle, in <i>deg</i> , defined in <b>3.2.3</b> .	

# Rules for the survey and construction of steel ships Part CSR-B Chapter 6 Section 2 3.3.1

Correction	Present	Note
The net section modulus w, in $cm^3$ , and the net shear sectional area $A_{sh}$ , in $cm^2$ , of side frames subjected to lateral pressure are to be not less, in the mid-span area, than the values obtained from the following formulae: $w = 1.125\alpha_m \frac{(p_S + p_W)s\ell^2}{m\lambda_S R_Y} 10^3$ $\frac{A_{sh}}{A_{sh}} = 1.1\alpha_S \frac{5(p_S + p_W)s\ell}{\tau_{a}\sin\phi} \frac{5(p_S + p_W)s\ell}{\tau_a sin\phi} \left(\frac{\ell - 2\ell_B}{\ell}\right)$ where: $\alpha_m$ :Coefficient taken equal to: $\alpha_m = 0.42$ for <i>BC-A</i> ships $\alpha_m = 0.36$ for other ships $\lambda_S$ :Coefficient taken equal to 0.9 $-\ell$ :Side frame span, in m, defined in <b>Ch 3</b> , <b>Sec 6</b> , <b>Fig. 19</b> , to be taken not less than 0.25D $\alpha_S$ :Coefficient taken equal to: $\alpha_S = 1.1$ for side frames of holds specified to be empty in <i>BC-A</i> ships $\alpha_S = 1.0$ for other side frames $-\mu\ell_B$ : Lower bracket length, in <i>m</i> , defined in <b>Fig 7</b> $p_{S-\tau_2}p_W$ : Still water and wave pressures, in $kN/m^2$ , in intact conditions calculated as defined in <b>1.3</b> and4and 1.4.2.	The net section modulus w, in $cm^3$ , and the net shear sectional area $A_{sh}$ , in $cm^2$ , of side frames subjected to lateral pressure are to be not less, in the mid-span area, than the values obtained from the following formulae: $w = 1.125\alpha_m \frac{(p_S + p_W)s\ell^2}{m\lambda_S R_Y} 10^3$ $A_{sh} = 1.1\alpha_S \frac{5(p_S + p_W)s\ell}{\tau_a \sin\phi} \left(\frac{\ell - 2\ell_B}{\ell}\right)$ where: $\alpha_m$ :Coefficient taken equal to: $\alpha_m = 0.42$ for <i>BC-A</i> ships $\alpha_m = 0.36$ for other ships $\lambda_S$ :Coefficient taken equal to 0.9 :Side frame span, in m, defined in Ch 3, Sec 6, Fig. 19, to be taken not less than 0.25D $\alpha_S$ :Coefficient taken equal to: $\alpha_S = 1.1$ for side frames of holds specified to be empty in <i>BC-A</i> ships $\alpha_S = 1.0$ for other side frames <i>B</i> :Lower bracket length, in <i>m</i> , defined in Fig 7 $p_s$ , $p_W$ : Still water and wave pressures, in $kN/m^2$ , in intact conditions calculated as defined in 1.3 and 1.4.2.	Note Reference correction
	and 1.4.2. In addition, for side frames of holds intended to carry ballast water in heavy ballast condition, the net section modulus $w$ , in $cm^3$ , and the net shear sectional area $A_{sh}$ , in $cm^2$ , all along the span are to be in accordance with <b>3.2.3</b> , being the span of the side frame as defined in <b>Ch.3</b> , <b>Sec.6</b> , <b>4.2</b> , with consideration to brackets at ends.	

# Rules for the survey and construction of steel ships Part CSR-B Chapter 6 Section 2 3.6.1

Correction	Present	Note
The bending capacity and the shear capacity of the corrugations of watertight bulkheads between separating cargo holds are to comply with the following formulae:	The bending capacity and the shear capacity of the corrugations of watertight bulkheads between separating cargo holds are to comply with the following formulae:	Reference correction
$0.5W_{LE} + W_M \ge \frac{M}{0.95R_{eH}} 10^3$	$0.5W_{LE} + W_M \ge \frac{M}{0.95R_{eH}} 10^3$	
$\tau \leq \frac{R_{eH}}{2}$	$\tau \leq \frac{R_{eH}}{2}$	
where:	where:	
M: Bending moment in a corrugation, to be obtained,	M: Bending moment in a corrugation, to be obtained,	
in <i>kN.m</i> , from the following formula: $M = F - cF \ell_C / 8$	in <i>kN.m</i> , from the following formula: M = F c / 8	
$F$ : Force $F_F$ or resultant force, in $kN$ , to be calculated	$F$ : Force $F_F$ or resultant force, in $kN$ , to be calculated	
according to Ch 4, Sec 6, 3.3.6 and 3.3.7,	according to Ch 4, Sec 6, 3.3.6 and 3.3.7,	
respectively $-c\ell \underline{c}$ : Span of the corrugations, in <i>m</i> , to be obtained	respectively $C$ : Span of the corrugations, in $m$ , to be obtained	
$-\epsilon_{1} \underline{c}$ . Span of the confugations, in <i>m</i> , to be obtained according to 3.6.2	according to 3.6.2	
$W_{LE}$ : Net section modulus, in $cm^3$ , of one half pitch	$W_{LE}$ : Net section modulus, in $cm^3$ , of one half pitch	
corrugation, to be calculated at the lower end of		
the corrugations according to 3.6.2, without		
being taken greater than the value obtained from	being taken greater than the value obtained from	
the following formula: $(0 h = 0.5h^2 c m)$	the following formula: $(Oh = 0.5h^2 c m)$	
$W_{LE,M} = W_G + \left(rac{Q \ h_G - 0.5 h_G^2 \ s_C \ p_G}{R_{eH}} ight) \ 10^3$	$W_{LE,M} = W_G + \left(rac{Q \ h_G - 0.5 h_G^2 \ s_C \ p_G}{R_{eH}} ight) \ 10^3$	
$W_G$ : Net section modulus, in $cm^3$ , of one half pitch	$W_G$ : Net section modulus, in $cm^3$ , of one half pitch	
corrugation, to be calculated in way of the upper	corrugation, to be calculated in way of the upper	
end of shedder or gusset plates, as applicable,	end of shedder or gusset plates, as applicable,	
according to 3.6.2	according to $3.6.2$	
Q: Shear force at the lower end of a corrugation, to be obtained, in $kN$ , from the following formula:	<i>Q</i> : Shear force at the lower end of a corrugation, to be obtained, in <i>kN</i> , from the following formula:	
Q = 0.8F	Q = 0.8F	
$h_G$ : Height, in <i>m</i> , of shedders or gusset plates, as	$h_G$ : Height, in <i>m</i> , of shedders or gusset plates, as	

applicable (see Fig. 11 to Fig. 15)	applicable (see Fig. 11 to Fig. 15)	
$p_G$ : Pressure $p_F$ or resultant pressure $p$ , in $kN/m^2$ , to	$p_G$ : Pressure $p_F$ or resultant pressure $p$ , in $kN/m^2$ , to	
be calculated in way of the middle of the	be calculated in way of the middle of the	
shedders or gusset plates, as applicable,	shedders or gusset plates, as applicable,	
according to Ch 4, Sec 6, 3.3.6 and 3.3.7,	according to Ch 4, Sec 6, 3.3.6 and 3.3.7,	
respectively	respectively	
$s_C$ : Spacing of the corrugations, in $m$ , to be taken	$s_C$ : Spacing of the corrugations, in <i>m</i> , to be taken	
according to Ch 3, Sec 6, Fig.28	according to Ch 3, Sec 6, Fig.28	
$W_M$ : Net section modulus, in $cm^3$ , of one half pitch	$W_M$ : Net section modulus, in $cm^3$ , of one half pitch	
corrugation, to be calculated at the mid-span of	corrugation, to be calculated at the mid-span of	
corrugations according to 3.6.2, without being	corrugations according to 3.6.2, without being	
taken greater than $1.15W_{LE}$	taken greater than $1.15W_{LE}$	
$\tau$ : Shear stress in the corrugation, in $N/mm^2$ , to be	$\tau$ : Shear stress in the corrugation, in $N/mm^2$ , to be	
obtained from the following formula:	obtained from the following formula:	
$ au = 10 rac{Q}{A_{sh}}$	$ au = 10 rac{Q}{A_{sh}}$	
$t = 10 \frac{A_{sh}}{A_{sh}}$	$t = 10 \frac{A_{sh}}{A_{sh}}$	
$A_{sh}$ : Shear area, in $cm^2$ , calculated according to the	$A_{sh}$ : Shear area, in $cm^2$ , calculated according to the	
followings.	followings.	
The shear area is to be reduced in order to	The shear area is to be reduced in order to	
account for possible non-perpendicular between	account for possible non-perpendicular between	
the corrugation webs and flanges. In general, the	the corrugation webs and flanges. In general, the	
reduced shear area may be obtained by	reduced shear area may be obtained by	
multiplying the web sectional area by (sin $\varphi$ ), $\varphi$	multiplying the web sectional area by $(\sin \varphi)$ , $\varphi$	
being the angle between the web and the flange	being the angle between the web and the flange	
(see Ch 3, Sec 6, Fig. 28). The actual net section	(see Ch 3, Sec 6, Fig. 28). The actual net section	
modulus of corrugations is to be calculated	modulus of corrugations is to be calculated	
according to 3.6.2. The net section modulus of	according to 3.6.2. The net section modulus of	
the corrugations upper part of the bulkhead, as	the corrugations upper part of the bulkhead, as	
defined in Sec 1, Fig. 5, is to be not less than	defined in Sec 1, Fig. 5, is to be not less than	
75% of that of the middle part complying with	75% of that of the middle part complying with	
this requirement and Sec 1, 3.2.1, corrected for	this requirement and Sec 1, 3.2.1, corrected for	
different minimum yield stresses.	different minimum yield stresses.	

### Rules for the survey and construction of steel ships Part CSR-B Chapter 6 Section 3 2.2.1

Correction	Present	Note
Application of the buckling and ultimate strength criterion	Application of the buckling and ultimate strength criterion	Reference correction
is described in AppCh 6, Appendix 1.	is described in App 1.	

## Rules for the survey and construction of steel ships Part CSR-B Chapter 6 Appendix 1 1.2.1

Correction	Present	Note
1.2.1 Idealization of elementary plate panels	1.2.1 Idealization of elementary plate panels	Reference correction
The buckling check of the elementary plate panel is to be	The buckling check of the elementary plate panel is to be	
performed under the loads defined in Ch 6, Sec 3, 2.1,	performed under the loads defined in Ch 6, Sec 3, 2.1,	
according to the requirements of Ch 6, Sec 3, 3.	according to the requirements of Ch 6, Sec 3, 3.	
The determination of the buckling and reduction factors is	The determination of the buckling and reduction factors is	
made according to the Ch 6, Sec 3, Table 2 for the plane plate	made according to the Ch 6, Sec 3, Table 2 for the plane plate	
panel and Ch 6, Sec 3, Table 3 for the curved plate panel.	panel and Ch 6, Sec 3, Table 3 for the curved plate panel.	
For the determination of the buckling and reduction factors	For the determination of the buckling and reduction factors	
in Ch 6, Sec 3, Table 2, the following cases are to be used	in Ch 6, Sec 3, Table 2, the following cases are to be used	
according to the type of stresses and framing system of the	according to the type of stresses and framing system of the	
plating:	plating:	
• For the normal compressive stress:	• For the normal compressive stress:	
• Buckling load case 1 for longitudinally framed	• Buckling load case 1 for longitudinally framed	
plating, the membrane stress in x-direction $\sigma_x$ being	plating, the membrane stress in x-direction $\sigma_x$ being	
the normal stress $\sigma_n$ defined in Ch 6, Sec 3, 2.1.2	the normal stress $\sigma_n$ defined in Ch 6, Sec 3, 2.1.2	
• Buckling load case 2 for transversely framed plating,	• Buckling load case 2 for transversely framed plating,	
the membrane stress in y-direction $\sigma_y$ being the	the membrane stress in y-direction $\sigma_y$ being the	
normal stress $\sigma_n$ defined in Ch 6, Sec3Sec 3, 2.1.2,	normal stress $\sigma_n$ defined in Ch 6, Sec3, 2.1.2, and the	
and the values a and b being exchanged to obtain $\alpha$	values a and b being exchanged to obtain $\alpha$ value	
value greater than 1 as it is considered in load case 2.	greater than 1 as it is considered in load case 2.	
• For the shear stress: Buckling case 5, $\tau$ being the	• For the shear stress: Buckling case 5, $\tau$ being the	
shear stress $\tau_{SF}$ defined in Ch 6, Sec 3, 2.1.3.	shear stress $\tau_{SF}$ defined in Ch 6, Sec 3, 2.1.3.	

## Rules for the survey and construction of steel ships Part CSR-B Chapter 7 Section 2 2.1.1

Correction	Present	Note
The longitudinal extent of <i>FE</i> model is to cover three cargo	The longitudinal extent of FE model is to cover three cargo	Reference correction
holds and four transverse bulkheads. The transverse bulkheads	holds and four transverse bulkheads. The transverse bulkheads	
at the ends of the model extent are to be included, together	at the ends of the model extent are to be included, together	
with their associated stools. Both ends of the model are to form	with their associated stools. Both ends of the model are to form	
vertical planes and to include any transverse web frames on	vertical planes and to include any transverse web frames on	
the planes if any. The details of the extent of the model are	the planes if any. The details of the extent of the model are	
given in AppCh 7, Appendix 1.	given in App 1.	

### Rules for the survey and construction of steel ships Part CSR-B Chapter 7 Section 2 2.2.4

Correction	Present	Note
<ul> <li>When orthotropic elements are not used in FE model:</li> <li>mesh size is to be equal to or less than the representative spacing of longitudinal stiffeners or transverse side frames</li> <li>stiffeners are to be modeled by using rod and/or beam/bar elements</li> <li>webs of primary supporting members are to be divided at least three elements height-wise However, for transverse primary supporting members inside hopper tank and top side tank, which are less in height than the space between ordinary longitudinal stiffeners, two elements on the height of primary supporting members are to be modeled by using shell elements for web and shell/beam/rod elements for face plate. Webs of side shell frames need not be divided along the direction of depth</li> <li>aspect ratio of elements is not to exceed 1:4.</li> <li>An example of typical mesh is given in AppCh 7, Appendix 1.</li> </ul>	<ul> <li>When orthotropic elements are not used in FE model:</li> <li>mesh size is to be equal to or less than the representative spacing of longitudinal stiffeners or transverse side frames</li> <li>stiffeners are to be modeled by using rod and/or beam/bar elements</li> <li>webs of primary supporting members are to be divided at least three elements height-wise However, for transverse primary supporting members inside hopper tank and top side tank, which are less in height than the space between ordinary longitudinal stiffeners, two elements on the height of primary supporting members are to be modeled by using shell elements for web and shell/beam/rod elements for face plate. Webs of side shell frames need not be divided along the direction of depth</li> <li>aspect ratio of elements is not to exceed 1:4. An example of typical mesh is given in App 1.</li> </ul>	Reference correction

## Rules for the survey and construction of steel ships Part CSR-B Chapter 7 Section 2 2.4.1

Correction	Present	Note
The loading conditions, combined with loading patterns and	0	Reference correction
load cases, as illustrated in Ch 4, AppAppendix 2, are to be	load cases, as illustrated in Ch 4, App 2, are to be considered	
considered as mandatory conditions for the conventional	as mandatory conditions for the conventional designs.	
designs.		

### Rules for the survey and construction of steel ships Part CSR-B Chapter 7 Section 2 2.5.2

Correction	Present	Note
Vertical bending moment analysis is to be performed for	Vertical bending moment analysis is to be performed for	Reference correction
cases listed in Ch 4, Sec 7, Table 2, the minimum required	cases listed in Ch 4, Sec 7, Table 2, the minimum required	
cases being listed in Ch 4, AppAppendix 2.	cases being listed in Ch 4, App 2.	
In vertical bending moment analysis the target hull girder	In vertical bending moment analysis the target hull girder	
loads are the maximum vertical bending moments which may	loads are the maximum vertical bending moments which may	
occur at the centre of the mid-hold in the <i>FE</i> model. The target	occur at the centre of the mid-hold in the FE model. The target	
values of hull girder loads are to be obtained in accordance	values of hull girder loads are to be obtained in accordance	
with Table 3 with considering still water vertical bending	with Table 3 with considering still water vertical bending	
moments specified in Ch 4, Sec7, Table 2, and in Ch 4,	moments specified in Ch 4, Sec 7, Table 2, and in Ch 4, App	
App <u>Appendix</u> 2.	2.	

# Rules for the survey and construction of steel ships Part CSR-B Chapter 7 Section 2 2.5.3

Correction	Present	Note
Vertical shear force analysis is to be performed for cases	Vertical shear force analysis is to be performed for cases	Reference correction
listed in Ch 4, Sec 7, Table 3, the minimum required cases	listed in Ch 4, Sec 7, Table 3, the minimum required cases	
being listed in Ch 4, AppAppendix 2.	being listed in Ch 4, App 2.	
In vertical shear force analysis the target hull girder loads	In vertical shear force analysis the target hull girder loads	
are the maximum vertical shear force which may occur at one	are the maximum vertical shear force which may occur at one	
of the transverse bulkheads of the mid-hold in the <i>FE</i> model.	of the transverse bulkheads of the mid-hold in the FE model.	
Reduced vertical bending moments are considered	Reduced vertical bending moments are considered	
simultaneously. The target values of hull girder loads are to be	simultaneously. The target values of hull girder loads are to be	
obtained in accordance with Table 4 with considering still	obtained in accordance with Table 4 with considering still	
water vertical bending moments and shear forces specified in	water vertical bending moments and shear forces specified in	
Ch 4, Sec 7, Table 2 and Ch 4, Sec 7, Table 3, and in Ch 4,	Ch 4, Sec 7, Table 2 and Ch 4, Sec 7, Table 3, and in Ch 4,	
AppAppendix 2.	App 2.	

# Rules for the survey and construction of steel ships Part CSR-B Chapter 7 Section 2 3.3.2

Correction	Present	Note
The stresses in each panel are to be obtained according to the following procedures:	The stresses in each panel are to be obtained according to the following procedures:	Reference correction
1) when the mesh model differs from the elementary	1) when the mesh model differs from the elementary	
plate panel geometry, the stresses $\sigma_x$ , $\sigma_x$ , $\sigma_y$ and $\tau$ acting on an elementary plate panel are to be evaluated by extrapolation and/or interpolation of surrounding meshes using the elements stresses or using the displacement based method described in AppCh 7, Appendix 2.	plate panel geometry, the stresses $\sigma_x$ , $\sigma_y$ and $\tau$ acting on an elementary plate panel are to be evaluated by extrapolation and/or interpolation of surrounding meshes using the elements stresses or using the displacement based method described in App 2.	
2) stresses obtained from with superimposed or direct method have to be reduced for buckling assessment because of the Poisson effect, which is taken into consideration in both analysis methods. The correction has to be carried out after summation of stresses due to local and global loads. When the stresses $\sigma_x^*$ and $\sigma_y^*$ are both compressive stresses, a stress reduction is to be made according to the following formulae:	<ul> <li>2) stresses obtained from with superimposed or direct method have to be reduced for buckling assessment because of the Poisson effect, which is taken into consideration in both analysis methods. The correction has to be carried out after summation of stresses due to local and global loads. When the stresses σ<sub>x</sub> and σ<sub>y</sub> are both compressive stresses, a stress reduction is to be made according to the following formulae:</li> </ul>	
$\sigma_x = (\sigma_x^* - 0.3\sigma_y^*)/0.91$	$\sigma_x = (\sigma_x^* - 0.3\sigma_y^*)/0.91$	
$\sigma_y = (\sigma_y^* - 0.3\sigma_x^*)/0.91$	$\sigma_y = (\sigma_y^* - 0.3\sigma_x^*)/0.91$	
Where compressive stress fulfils the condition $\sigma_y^* < 0.3\sigma_x^*$ , then $\sigma_y = 0$ and $\sigma_x = \sigma_x^*$	Where compressive stress fulfils the condition $\sigma_y^* < 0.3\sigma_x^*$ , then $\sigma_y = 0$ and $\sigma_x = \sigma_x^*$	
Where compressive stress fulfils the condition $\sigma_x^* < 0.3\sigma_y^*$ , then $\sigma_x = 0$ and $\sigma_y = \sigma_y^*$	Where compressive stress fulfils the condition $\sigma_x^* < 0.3\sigma_y^*$ , then $\sigma_x = 0$ and $\sigma_y = \sigma_y^*$	
$\sigma_x^*, \sigma_y^*$ : Stresses containing the Poisson effect	$\sigma_x^*, \sigma_y^*$ : Stresses containing the Poisson effect	
3) determine stress distributions along edges of the considered buckling panel by introducing proper linear approximation as shown in <b>Fig. 2</b> .	3) determine stress distributions along edges of the considered buckling panel by introducing proper linear approximation as shown in <b>Fig. 2</b> .	
4) calculate edge factor $\psi$ according to Ch 6, Sec 3.	4) calculate edge factor $\psi$ according to Ch 6, Sec 3.	

### Rules for the survey and construction of steel ships Part CSR-B Chapter 7 Section 3 3.1.1

Correction	Present	Note
Von Mises equivalent stresses in plate elements and axial	Von Mises equivalent stresses in plate elements and axial	Reference correction
stresses in line elements within refined areas are not to exceed	stresses in line elements within refined areas are not to exceed	
$280/k N/mm^2$ , where k is the material factor defined in Ch3Ch	$280/k N/mm^2$ , where k is the material factor defined in Ch3,	
<u>3</u> , Sec 1.	Sec 1.	
In case elements significantly smaller than the size defined	In case elements significantly smaller than the size defined	
in <b>2.3.2</b> are used, this criteria applies to the average stress of	in 2.3.2 are used, this criteria applies to the average stress of	
all elements included in an area corresponding to a single	all elements included in an area corresponding to a single	
element having the size specified in 2.3.2.	element having the size specified in 2.3.2.	

### Rules for the survey and construction of steel ships Part CSR-B Chapter 7 Section 4 2.3.1

Correction	Present	Note
The boundary conditions specified in Sec2Sec 2, 2.3.1 are	The boundary conditions specified in Sec2, 2.3.1 are to be	Reference correction
to be applied to the cargo hold model with localized very fine	applied to the cargo hold model with localized very fine	
meshes or the mother model for sub-models. When using sub-	meshes or the mother model for sub-models. When using sub-	
models, nodal displacements or forces obtained from the	models, nodal displacements or forces obtained from the	
mother model are to be applied to sub-models.	mother model are to be applied to sub-models.	

## Rules for the survey and construction of steel ships Part CSR-B Chapter 8 Section 1 2.2.1

Correction	Present	Note
Nominal stress is the stress in a structural component taking	Nominal stress is the stress in a structural component taking	Reference correction
into account macro-geometric effects but disregarding the	into account macro-geometric effects but disregarding the	
stress concentration due to structural discontinuities and to the	stress concentration due to structural discontinuities and to the	
presence of welds.	presence of welds.	
Nominal stresses are to be obtained either with the coarse	Nominal stresses are to be obtained either with the coarse	
mesh FE analysis specified in Ch 7, Sec 4, or with the	mesh FE analysis specified in Ch 7, Sec 4, or with the	
simplified procedure specified in Sec4Sec 4.	simplified procedure specified in Sec4.	

### Rules for the survey and construction of steel ships Part CSR-B Chapter 8 Section 1 3.2.2

Correction	Present	Note
In the case of fatigue assessment of hatch corners, only	In the case of fatigue assessment of hatch corners, only	Reference correction
oblique sea is to be considered, taking into account the wave	oblique sea is to be considered, taking into account the wave	
torsional moments defined in Ch 4, Sec 3, [3.4].	torsional moments defined in Ch 4, Sec 3, [3.4].	

### Rules for the survey and construction of steel ships Part CSR-B Chapter 8 Section 2 2.3.1

Correction	Present	Note
The equivalent notch stress range, in $N/mm^2$ , for each loading condition is to be calculated with the following	The equivalent notch stress range, in $N/mm^2$ , for each loading condition is to be calculated with the following	Reference correction
formula:	formula:	
$\Delta \sigma_{eq,j} = K_f \Delta \sigma_{equiv,j}$	$\Delta \sigma_{eq, j} = K_f \Delta \sigma_{equiv, j}$	
where:	where:	
$\Delta \sigma_{equiv,j}$ : Equivalent hot spot stress range, in	$\Delta \sigma_{equiv,j}$ : Equivalent hot spot stress range, in	
$N/mm^2$ , in loading condition "j" obtained by	$N/mm^2$ , in loading condition "j" obtained by	
<del>[</del> 2.3.2 <del>].</del>	[2.3.2].	
$K_f$ : Fatigue notch factor defined in Table 1.	$K_f$ : Fatigue notch factor defined in Table 1.	

#### Rules for the survey and construction of steel ships Part CSR-B Chapter 8 Section 3 2.2.2

Correction	Present	Note
The hull girder hot spot stress, in $N/mm^2$ , in load cases " <i>i</i> 1" and " <i>i</i> 2" for loading condition "( <i>k</i> )" is to be obtained from the following formula:	The hull girder hot spot stress, in $N/mm^2$ , in load cases " <i>i</i> 1" and " <i>i</i> 2" for loading condition "( <i>k</i> )" is to be obtained from the following formula:	Reference correction
$\sigma_{GW,ij(k)} = C_{WV,ij} \sigma_{WV,ij} - C_{WH,ij} \sigma_{WH,(k)} - (j - 1, 2)$	$\sigma_{GW,ij(k)} = C_{WV,ij} \sigma_{WV,ij} - C_{WH,ij} \sigma_{WH,(k)} \qquad (j = 1, 2)$	
where:	where:	
$C_{WV, i1}, C_{WV, i2}, C_{WH, i1}, C_{WH, i2}$ : Load	$C_{WV, i1}, C_{WV, i2}, C_{WH, i1}, C_{WH, i2}$ : Load	
combination factors for	combination factors for	
each load case defined in	each load case defined in	
Ch 4, Sec 4, 2.2	Ch 4, Sec 4, 2.2	
$\sigma_{WV,i1}$ : Nominal hull girder stress, in $N/mm^2$ , in	$\sigma_{WV,i1}$ : Nominal hull girder stress, in $N/mm^2$ , in	

sagging condition induced by vertical wave	sagging condition induced by vertical wave	
bending moment	bending moment	
$M_{WV,S}(z-N)_{10^{-3}}$	$M_{WV,S}(z-N)_{10-3}$	
$\sigma_{WV,i1} = \frac{M_{WV,S}(z-N)}{I_Y}10^{-3}$	$\sigma_{WV,i1} = \frac{M_{WV,S}(z-N)}{I_Y} 10^{-3}$	
$\sigma_{WV, i2}$ : Nominal hull girder stress, in $N/mm^2$ , in	$\sigma_{WV, i2}$ : Nominal hull girder stress, in $N/mm^2$ , in	
hogging condition induced by vertical wave	hogging condition induced by vertical wave	
bending moment	bending moment	
$M_{WVH}(z-N)$	$M_{WVH}(z-N)$	
$\sigma_{WV, i2} = \frac{M_{WV, H} (z - N)}{I_Y} 10^{-3}$	$\sigma_{WV,i2} = \frac{M_{WV,H}(z-N)}{I_Y}10^{-3}$	
$M_{WV, H}, M_{WV, S}$ : Vertical wave bending moments, in	$M_{WV,H}, M_{WV,S}$ : Vertical wave bending moments, in	
<i>kN-m</i> , in hogging and sagging	kN-m, in hogging and sagging	
conditions defined in Ch 4, Sec 3,	conditions defined in Ch 4, Sec 3,	
<b>3.1.1</b> , with $f_p = 0.5$	<b>3.1.1</b> , with $f_p = 0.5$	
N : Z co-ordinate, in <i>m</i> , of the neutral axis, as	N : Z co-ordinate, in <i>m</i> , of the neutral axis, as	
defined in Ch 5, Sec 1	defined in Ch 5, Sec 1	
z : Z co-ordinate, in m, of the point considered	z : Z co-ordinate, in m, of the point considered	
$\sigma_{WH,(k)}$ : Nominal hull girder stress, in $N/mm^2$ ,	$\sigma_{WH,(k)}$ : Nominal hull girder stress, in $N/mm^2$ ,	
induced by horizontal wave bending moment	induced by horizontal wave bending moment	
$M_{WH}(k) \gamma$	$M_{WH}(k) \gamma$	
$\sigma_{WH,(k)} = \frac{M_{WH,(k)} y}{I_z} 10^{-3}$	$\sigma_{WH,(k)} = \frac{M_{WH,(k)} y}{I_Z} 10^{-3}$	
$M_{WH,(k)}$ : Horizontal wave bending moment,	$M_{WH,(k)}$ : Horizontal wave bending moment,	
in kN-m, in loading condition "(k)" defined in	in kN-m, in loading condition "(k)" defined in	
Ch 4, Sec 3, $\{3,3,1\}_{5,2}$ with $f_p = 0.5$	Ch 4, Sec 3, [3.3.1], with $f_p = 0.5$	
y : Y co-ordinate, in <i>m</i> , of the point considered, to	y : Y co-ordinate, in <i>m</i> , of the point considered, to	
be taken positive at port side and negative at	be taken positive at port side and negative at	
starboard side	starboard side	
$I_Y, I_Z$ :Net moments of inertia of hull cross-section, in $m^4$ ,	$I_Y, I_Z$ :Net moments of inertia of hull cross-section, in $m^4$ ,	
about transverse and vertical axis respectively, as defined in	about transverse and vertical axis respectively, as defined in	
Ch 5, Sec 1.	Ch 5, Sec 1.	
	UII 5, 500 1.	

## Rules for the survey and construction of steel ships Part CSR-B Chapter 8 Section 4 3.3.3

Correction	Correction Present	
The hot spot stress due to hydrostatic and hydrodynamic $\frac{1}{2} \frac{1}{2} \frac{1}$	The hot spot stress due to hydrostatic and hydrodynamic $N/(m^2)$ in loading condition "(b)" is to be obtained	Reference correction
pressure, in $N/mm^2$ , in loading condition "(k)" is to be obtained with the following formula:	pressure, in $N/mm^2$ , in loading condition "(k)" is to be obtained with the following formula:	
$\sigma_{LS,(k)} = \frac{K_{gl}K_s \left\{ p_{S,(k)} + \frac{p_{CW,i1(k)} + p_{CW,i2(k)}}{2} \right\} s \ell^2 \left( 1 - \frac{6x_f}{\ell} + \frac{6x_f^2}{\ell^2} \right)}{12w} \cdot 10^3$	$\sigma_{LS,(k)} = \frac{K_{gl}K_s \left\{ p_{S,(k)} + \frac{p_{CW,i1(k)} + p_{CW,i2(k)}}{2} \right\} s\ell^2 \left( 1 - \frac{6x_f}{\ell} + \frac{6x_f^2}{\ell^2} \right)}{12w} \cdot 10^3$	
where:	where:	
<i>ps</i> , (k): Hydrostatic pressure, in $kN/m^2$ , in loading	<i>ps</i> , ( <i>k</i> ): Hydrostatic pressure, in $kN/m^2$ , in loading	
condition " $(k)$ " specified in Ch 4, Sec 5, 1.2.	condition " $(k)$ " specified in Ch 4, Sec 5, 1.2.	
$p_{CW,ij(k)}$ : Corrected hydrodynamic pressure, in $kN/m^2$ ,	$p_{CW,ij(k)}$ : Corrected hydrodynamic pressure, in $kN/m^2$ ,	
according to 2.3.3, with $f_p = 0.5$ , in load case	according to 2.3.3, with $f_p = 0.5$ , in load case	
" <i>i</i> 1" and " <i>i</i> 2" for loading condition " $(k)$ ".	" <i>i</i> 1" and " <i>i</i> 2" for loading condition " $(k)$ ".	
<i>i</i> : Suffix which denotes the load case specified in	<i>i</i> : Suffix which denotes the load case specified in	
Sec $2-\frac{1}{2}$ 2.1.1 $\frac{1}{12}$ when calculating the mean	Sec 2 [2.1.1], when calculating the mean stress,	
stress, " <i>I</i> " is to be used.	" <i>I</i> " is to be used.	

### Rules for the survey and construction of steel ships Part CSR-B Chapter 10 Section 1 10.1.3

Correction	Present	Note
The welded joint between the rudder stock (with	thickened The welded joint between the rudder stock (with thicken	ed Reference correction
collar, see Ch11Ch 11, Sec 2) and the flange is to b	be made in collar, see Ch11, Sec 2) and the flange is to be made	in
accordance with Fig. 21.	accordance with Fig. 21.	

-	Correction	-	-	Preser	nt	Note
		Table 1 Categories	of Fillet Welds			Reference correction
Categor y	Kinds of fillet welds	As-built thickness of abutting plate, $t$ , in $mm^{(1)}$	Leg length of fillet weld, in $mm^{(2), (3)}$	Length of fillet welds, in <i>mm</i>	Pitch, in <i>mm</i>	
F <b>0</b>	Double continuous weld	t	0.7 <i>t</i>	-	-	
	Dauble continuous	$t \leq 10$	0.5t + 1.0	-	-	
F 1	Double continuous weld	$10 \le t \le 20$	0.4t + 2.0	-	-	
	weiu	$20 \le t$	0.3t + 4.0	-	-	
		$t \leq 10$	0.4t + 1.0	-	-	
F 2	Double continuous weld	$10 \le t < 20$	0.3t + 2.0	-	-	
		$20 \le t$	0.2t + 4.0	-	-	
	D 11	$t \leq 10$	0.3t + 1.0			
F <b>3</b>	Double continuous weld	$10 \le t \le 20$	0.2t + 2.0	-	-	
	weiu	$20 \le t$	0.1t + 4.0			
		$t \leq 10$	0.5t + 1.0			
F <b>4</b>	Intermittent weld	$10 \le t < 20$	0.4t + 2.0	75	300	
		$20 \le t$	0.3t + 4.0			
of the (2) Leg 1 Sec 3 + 1.0 + 0.5 + 0.0 - 0.5	e continuous member an ength of fillet welds is pe, Table 1 as follows:mmfor $t_c > 1$ mmfor $5 \ge t_c$ mmfor $4 \ge t_c$ mmfor $t_c \le 3$	c > 4 c > 3	sidered independently for	each abutting plate		

## Rules for the survey and construction of steel ships Part CSR-T Section 3 3.2.1.2

Correction	Present	Note
compliance with this part will be used according to the	plans, reports or documents have been reviewed for compliance with this part will be used according to the <b>REGULATIONS FOR THE CLASSFICATION AND</b>	

## Rules for the survey and construction of steel ships Part CSR-T Section 4 1.5.1.1

Correction	Present	Note
1.5.1.1 FigFigs. 4.1.2, 4.1.3 and 4.1.4 show the	<b>igFigs.</b> 4.1.2, 4.1.3 and 4.1.4 show the 1.5.1.1 Fig. 4.1.2, 4.1.3 and 4.1.4 show the common V	
common structural nomenclature used within this Part.	structural nomenclature used within this Part.	there are a set of the

# Rules for the survey and construction of steel ships Part CSR-T Section 4 2.4.3.2

Correction	Present	Note
2.4.3.2 The effective net plastic section modulus, $Z_{pl-net}$ , of local support members is to be taken as:	2.4.3.2 The effective net plastic section modulus, $Z_{pl-net}$ , of local support members is to be taken as:	Wording correction
$Z_{pl-net} = \frac{\frac{f_w d_w^2 t_{w-net} \sin \varphi_w}{2000}}{\left(2 \gamma - 1\right) A_{f-net} \left(h_{f-ctr} \sin \varphi_w - b_{f-ctr} \cos \varphi_w\right)}{1000}} +$	$Z_{pl-net} = \frac{\frac{f_w d_w^2 t_{w-net} \sin \varphi_w}{2000}}{\left(2 \gamma - 1\right) A_{f-net} \left(h_{f-ctr} \sin \varphi_w - b_{f-ctr} \cos \varphi_w\right)}{1000}} +$	
$(cm^3)$	$(cm^3)$	
Where: $f_{w} : web shear stress factor = 0.75 for flanged profile cross-sections with n = 1 or 2 = 1.0 for flanged profile cross-sections with n = 0 and for flat bar stiffeners n : number of moment effective end supports of each member = 0, 1 or 2A moment effective end support may be considered where:(a) the stiffener is continuous at the support(b) the stiffener passes through the support plate while it is connected at it's termination point by a carling (or equivalent) to adjacent stiffeners(c) the stiffener is attached to a abutting stiffener flective in bending (not a buckling stiffener) or bracket. The bracket is assumed to be bending effective when it is attached to another stiffener (not a buckling stiffener).$	Where: $f_{w} : \text{web shear stress factor} = 0.75 \text{ for flanged profile} \\ \text{cross-sections with } n = 1 \text{ or } 2 \\ = 1.0 \text{ for flanged profile} \\ \text{cross-sections with } n = 0 \text{ and} \\ \text{for flat bar stiffeners} \\ n : \text{number of moment effective end} \\ \text{supports of each member } = 0, 1 \text{ or} \\ 2 \\ \text{A moment effective end support} \\ \text{may be considered where:} \\ (a) the stiffener is continuous at \\ the support \\ (b) the stiffener passes through \\ the support plate while it is \\ connected at it's termination \\ point by a carling (or \\ equivalent) to adjacent \\ stiffeners \\ (c) the stiffener is attached to a \\ abutting stiffener effective in \\ bending (not a buckling \\ stiffener) or bracket. The \\ bracket is assumed to be \\ bending effective when it is \\ attached to another stiffener \\ (not a buckling stiffener). \\ \end{cases}$	
$d_w$ : depth of stiffener web, in <i>mm</i>	$d_w$ : depth of stiffener web, in <i>mm</i>	

	$= h_{stf}$ - $t_{f-net}$ for T, L		$= h_{stf} - t_{f-net}$ for T, L	
	(rolled and built up) and L2		(rolled and built up) and L2	
	profiles		profiles	
	$= h_{stf}$ for flat bar		$= h_{stf}$ for flat bar	
	and L3 profiles		and L3 profiles	
	to be taken as given in <b>Table 4.2.3</b>		to be taken as given in Table 4.2.3	
	and Table 4.2.4 for bulb profiles		and Table 4.2.4 for bulb profiles	
h <sub>stf</sub>	: stiffener height, in <i>mm</i> , see Fig.	h <sub>stf</sub>	: stiffener height, in <i>mm</i> , see Fig.	
- U	4.2.12	- 5	4.2.12	
γ	$= 0.25 \left(1 + \sqrt{3 + 12\beta}\right)$	γ	$= 0.25 \left(1 + \sqrt{3 + 12\beta}\right)$	
β	= 0.5 for all cases, except L	β	= $0.5$ for all cases, except L	
	profiles without a mid span		profiles without a mid span	
	tripping bracket		tripping bracket	
	$=\frac{10^{6}t^{2}_{w-net}f_{b}l_{f}^{2}}{80 b_{f}^{2}t_{f-net}h_{f-ctr}}+\frac{t_{w-net}}{2 b_{f}}$		$=\frac{10^{6}t^{2}_{w-net}f_{b}l^{2}_{f}}{80 b^{2}_{f}t_{f-net}h_{f-ctr}}+\frac{t_{w-net}}{2 b_{f}}$	
	$=\frac{1}{80 b_f^2 t_{f-net} h_{f-ctr}} + \frac{1}{2 b_f}$		$=\frac{1}{80 b_f^2 t_{f-net} h_{f-ctr}} + \frac{1}{2 b_f}$	
	but not to be taken greater than 0.5		but not to be taken greater than 0.5	
	for L (rolled and built-up)		for L (rolled and built-up)	
	profiles without a mid span		profiles without a mid span	
	tripping bracket		tripping bracket	
Afnet	: net cross-sectional area of	$A_{f-net}$	: net cross-sectional area of flange,	
	flange, in <i>mm</i> <sup>2</sup>		in $mm^2$	
	$= b_f t_{f-net}$ in general		$= b_f t_{f-net}$ in general	
	= 0 for flat bar stiffeners		= 0 for flat bar stiffeners	
$b_f$	: breadth of flange, in mm, see	$b_f$	: breadth of flange, in <i>mm</i> , see Fig.	
	Fig. 4.2.12. For bulb profiles,		4.2.12. For bulb profiles, see	
	see Table 4.2.3 and Table 4.2.4		Table 4.2.3 and Table 4.2.4	
$b_{f-ctr}$	: distance from mid thickness of	$b_{f-ctr}$	: distance from mid thickness of	
	stiffener web to the centre of the		stiffener web to the centre of the	
	flange area		flange area	
	$= 0.5 \left( b_f - t_{w-grs} \right) \qquad \text{for}$		$= 0.5 \left( b_f - t_{w-grs} \right) \qquad \text{for}$	
	rolled angle profiles		rolled angle profiles	
	= 0 for T profiles		= 0 for T profiles	
	as given in Table 4.2.3 and Table		as given in Table 4.2.3 and Table	
	<b>4.2.4</b> for bulb profiles		<b>4.2.4</b> for bulb profiles	
$h_{f-ctr}$	: height of stiffener measured to	h <sub>f-ctr</sub>	: height of stiffener measured to	
	the mid thickness of the flange		the mid thickness of the flange	
	$= h_{stf} - 0.5 t_{f-net}$ for		$= h_{stf} - 0.5 t_{f-net}$ for	
	profiles		profiles	
	with		with	

flange	flange	
of	of	
rectang	rectang	
ular	ular	
shape	shape	
except	except	
for L3	for L3	
profiles	profiles	
$= h_{stf} - d_{edge} - 0.5 t_{f-net}$ for L3	$= h_{stf} - d_{edge} - 0.5 t_{f-net}$ for L3	
profiles	profiles	
as given in Table 4.2.3 and Table	as given in Table 4.2.3 and 4.2.4	
4.2.4 for bulb profiles	for bulb profiles	
$d_{edge}$ : distance from upper edge of web	$d_{edge}$ : distance from upper edge of web	
to the top of the flange, in mm.	to the top of the flange, in mm.	
For L3 profiles, see Fig. 4.2.12	For L3 profiles, see Fig. 4.2.12	
$f_b$ =1.0 in general	$f_b$ =1.0 in general	
=0.8 for continuous flanges with	=0.8 for continuous flanges with	
end bracket(s). A continuous	end bracket(s). A continuous	
flange is defined as a flange	flange is defined as a flange	
that is not sniped and	that is not sniped and	
continuous through the	continuous through the	
primary support member	primary support member	
=0.7 for non-continuous flanges	=0.7 for non-continuous flanges	
with end bracket(s). A non-	with end bracket(s). A non-	
continuous flange is defined	continuous flange is defined	
as a flange that is sniped at	as a flange that is sniped at	
the primary support member	the primary support member	
or terminated at the support	or terminated at the support	
without aligned structure on	without aligned structure on	
the other side of the support	the other side of the support	
$l_f$ : length of stiffener flange	$l_f$ : length of stiffener flange between	
between supporting webs, in <i>m</i> ,	supporting webs, in m, but	
but reduced by the arm length of	reduced by the arm length of end	
end bracket(s) for stiffeners with	bracket(s) for stiffeners with end	
end bracket(s) fitted	bracket(s) fitted	
$t_{f-net}$ : net flange thickness, in $mm$	$t_{f-net}$ : net flange thickness, in $mm$	
= 0 for flat bar stiffeners	= 0 for flat bar stiffeners	
given in Table 4.2.3 and Table	given in Table 4.2.3 and Table	
<b>4.2.4</b> for bulb profiles	<b>4.2.4</b> for bulb profiles	
$t_{w-net}$ : net web thickness, in mm	$t_{w-net}$ : net web thickness, in mm	

#### Editorial Correction for Technical Rules and Guidance

1

$\varphi_w$ : angle between the stiffener web	$\varphi_w$ : angle between the stiffener web
and the plate flange, see Fig.	and the plate flange, see Fig.
<b>4.2.14</b> , in <i>degrees</i> . $\varphi_w$ is to be	<b>4.2.14</b> , in <i>degrees</i> . $\varphi_w$ is to be
taken as 90 degrees if the angle	taken as 90 <i>degrees</i> if the angle is
is greater than or equal to 75	greater than or equal to 75
degrees	degrees

### Rules for the survey and construction of steel ships Part CSR-T Section 4 3.4.3.4

# Rules for the survey and construction of steel ships Part CSR-T Section 7 6.3.8.2

Correction	Present	Note
6.3.8.2 The simultaneously acting dynamic vertical	6.3.8.2 The simultaneously acting dynamic vertical	
force for heavy units, $F_{dk-dyn}$ , acting on supporting structures	force for heavy units, $F_{dk-dyn}$ , acting on supporting structures	
and securing systems for heavy units of cargo, equipment or	and securing systems for heavy units of cargo, equipment or	
structural components, is to be taken as:	structural components, is to be taken as:	
$F_{dk-dyn} = f_{\beta} f_{\nu-mid} F_{\nu}  (kN)$	$F_{dk-dyn} = f_{\beta} f_{\nu-mid} F_{\nu} \qquad (kN)$	
Where:	Where:	
$F_v$ : envelope vertical dynamic load from heavy units, in $kN$ , as defined in 3.5.6	$F_{\nu}$ : envelope vertical dynamic load from heavy units, in $kN$ , as defined in <b>3.5.6</b>	
$f_{v-mid}$ : dynamic load combination factor for vertical acceleration for the considered dynamic load case, see Table 7.6.2 and Table 7.6.4 to <u>Table</u> 7.6.9	<i>f<sub>v-mid</sub></i> : dynamic load combination factor for vertical acceleration for the considered dynamic load case, see Table 7.6.2 and Table 7.6.4 to 7.6.9	Wording correction
$f_{\beta}$ : heading correction factor, as defined in 6.3.1.1	$f_{\beta}$ : heading correction factor, as defined in 6.3.1.1	

# Rules for the survey and construction of steel ships Part CSR-T Section 8 1.3.4.2

Correction	Present	Note
1.3.4.2 The total stringer supporting force, $F_{str-k}$ , in way of a longitudinal bulkhead is to be taken as: $F_{str-k} = \frac{P_{str}b_{str}(h_k+h_{k-1})}{2}  (kN)$	1.3.4.2 The total stringer supporting force, $F_{str-k}$ , in way of a longitudinal bulkhead is to be taken as: $F_{str-k} = \frac{P_{str}b_{str}(h_k+h_{k-1})}{2}  (kN)$	
Where:	Where:	
$P_{str}$ : pressure on stringer, in $kN/m^2$ , to be taken as $10h_{tt}$ $h_{tt}$ : the height from the top of the tank to the midpoint of the load area between $h_k/2$ below the stringer and $h_{k-1}/2$ above the stringer, in $m$ $h_k$ : the vertical distance from the considered stringer to the stringer, it is to be taken as 80 % of the average vertical distance to the	$P_{str}$ : pressure on stringer, in $kN/m^2$ , to be taken as $10h_{tt}$ $h_{tt}$ : the height from the top of the tank to the midpoint of the load area between $h_k/2$ below the stringer and $h_{k-1}/2$ above the stringer, in $m$ $h_k$ : the vertical distance from the considered stringer to the stringer, it is to be taken as 80 % of the average vertical distance to the	
the average vertical distance to the inner bottom, in $m$ $h_{k-1}$ : the vertical distance from the considered stringer to the stringer above. For the uppermost stringer, it is to be taken as 80 % of the average vertical distance to the upper deck, in $m$ $b_{str}$ : load breadth acting on the stringer, in $m$ , see <b>FigFigs. 8.1.7</b> and <b>8.1.8</b>	the average vertical distance to the inner bottom, in $m$ $h_{k-1}$ : the vertical distance from the considered stringer to the stringer above. For the uppermost stringer, it is to be taken as 80 % of the average vertical distance to the upper deck, in $m$ $b_{str}$ : load breadth acting on the stringer, in $m$ , see Fig. 8.1.7 and 8.1.8	Wording correction

# Rules for the survey and construction of steel ships Part CSR-T Section 8 2.1.4.8

Correction	Present	Note
2.1.4.8 Enlarged stiffeners (with or without web	2.1.4.8 Enlarged stiffeners (with or without web	
stiffening) used for Permanent Means of Access (PMA) are to	stiffening) used for Permanent Means of Access (PMA) are to	
comply with the following requirements:	comply with the following requirements:	
(a) Buckling strength including proportion (slenderness	(a) Buckling strength including proportion (slenderness	
ratio) requirements for primary support members as follows:	ratio) requirements for primary support members as follows:	
• For stiffener web, see Section 10/2.3.1.1(a),	• For stiffener web, see Section 10/2.3.1.1(a),	
10/3.2.	10/3.2.	
• For stiffener flange, see Section 10/2.3.1.1(b),	• For stiffener flange, see Section 10/2.3.1.1(b),	
10/2.3.3.1.	10/2.3.3.1.	
• For web stiffeners, see Section 10/2.3.2.1,	• For web stiffeners, see Section 10/2.3.2.1,	
10/2.3.2.2, 10/3.3.	10/2.3.2.2, 10/3.3.	
Note: Note 1 of table Table 10.2.1 is not applicable.	Note: Note 1 of table 10.2.1 is not applicable.	Wording correction
(b) Buckling strength of longitudinal PMA platforms	(b) Buckling strength of longitudinal PMA platforms	
without web stiffeners may also be ensured using the	without web stiffeners may also be ensured using the	
criteria for local support members in Section 10/2.2	criteria for local support members in Section 10/2.2	
and Section 10/3.3, including Note 1 of Table 10.2.1,	and Section 10/3.3, including Note 1 of Table 10.2.1,	
provided shear buckling strength of web is verified in line with Section 10/3.2.	provided shear buckling strength of web is verified in line with Section 10/3.2.	
<ul><li>(c) All other requirements for local support members as</li></ul>	(c) All other requirements for local support members as	
follows:	follows:	
Corrosion additions: requirements for local	• Corrosion additions: requirements for local	
support members	support members	
• Minimum thickness: requirements for local	• Minimum thickness: requirements for local	
support members	support members	
• Fatigue: requirements for local support members	• Fatigue: requirements for local support members	
Note: For primary support members (or part of it) used as a	Note: For primary support members (or part of it) used as a	
PMA platform the requirements for primary support	PMA platform the requirements for primary support	
members are to be applied.	members are to be applied.	

# Rules for the survey and construction of steel ships Part CSR-T Section 8 2.6.1.7

Correction	Present	Note
2.6.1.7 Webs of the primary support members are to	2.6.1.7 Webs of the primary support members are to	
have a depth of not less than given by the requirements of	have a depth of not less than given by the requirements of	
<b>2.6.4.1</b> , <b>2.6.6.1</b> and <b>2.6.7.1</b> , as applicable. Lesser depths may	<b>2.6.4.1</b> , <b>2.6.6.1</b> and <b>2.6.7.1</b> , as applicable. Lesser depths may	
be accepted where equivalent stiffness is demonstrated. See		
Section 3/5.3.3.4. Primary support members that have open	3/5.3.3.4. Primary support members that have open slots for	Wording correction
slots for stiffeners are to have a depth not less than 2.5 <i>times</i>	stiffeners are to have a depth not less than 2.5 <i>times</i> the depth	
the depth of the slots.	of the slots.	

# Rules for the survey and construction of steel ships Part CSR-T Section 8 6.2.5.3

Correction	Present	Note
6.2.5.3 The net section modulus, $Z_{net}$ , of each individual stiffener on the web plating of primary support members subjected to sloshing pressures is not to be less than:	6.2.5.3 The net section modulus, $Z_{net}$ , of each individual stiffener on the web plating of primary support members subjected to sloshing pressures is not to be less than:	Wording correction
$Z_{net} = \frac{P_{slh} \ s \ l_{bdg}^2}{f_{bdg} \ c_s \ \sigma_{yd}}  (cm^3)$	$Z_{net} = \frac{P_{slh} \ s \ l_{bdg}^2}{f_{bdg} \ C_s \ \sigma_{yd}}  (cm^3)$	
Where:	Where:	
$P_{slh}$ : the greater of $P_{slh-lng}, P_{slh-wf}, P_{slh-grd}$ or $P_{slh-min}$ as specified in 6.2.2. The pressure is to be calculated at the load application point taking into account the distribution over the height of the member, as shown in Fig. Figs. 8.6.1 and 8.6.2. S: stiffener spacing, in mm, as defined in Section 4/2.2 $s_{bdg}$ : effective bending span, in m, of web stiffener as defined in Section 4/2.1 $C_s$ : permissible bending stress coefficient as given in Table 8.6.2 $f_{bdg}$ : bending moment factor = 12 for stiffeners fixed against rotation at each end. This is generally to be applied for scantlings of all continuous stiffeners $= 8$ for stiffeners with one or both ends not fixed against rotation. This is generally to be applied to discontinuous stiffeners for other configurations the	$P_{slh}$ : the greater of $P_{slh-lng}, P_{slh-lf}, P_{slh-wf}, P_{slh-grd}$ or $P_{slh-min}$ as specified in 6.2.2. The pressure is to be calculated at the load application point taking into account the distribution over the height of the member, as shown in Fig. 8.6.1 and 8.6.2. $s$ : stiffener spacing, in mm, as defined in Section 4/2.2 $l_{bdg}$ : effective bending span, in m, of web stiffener as defined in Section 4/2.1 $C_s$ : permissible bending stress coefficient as given in Table 8.6.2 $f_{bdg}$ : bending moment factor = 12 for stiffeners fixed against rotation at each end. This is generally to be applied for scantlings of all continuous stiffeners $= 8$ for stiffeners with one or both ends not fixed against rotation. This is generally to be applied to discontinuous stiffeners for other configurations the	
bending moment factor may be taken as given in Table 8.3.5 σ <sub>yd</sub> : specified minimum yield stress of the material, in <i>N/mm</i> <sup>2</sup>	bending moment factor may be taken as given in Table 8.3.5 σ <sub>yd</sub> : specified minimum yield stress of the material, in N/mm <sup>2</sup>	

### Rules for the survey and construction of steel ships Part CSR-T Section 8 6.2.5.4

Correction	Present	Note
6.2.5.4 The net section modulus, <i>Z<sub>net</sub></i> , in way of the base of tripping brackets supporting primary support members	6.2.5.4 The net section modulus, <i>Z<sub>net</sub></i> , in way of the base of tripping brackets supporting primary support members	Wording correction
in cargo and ballast tanks is not to be less than:	in cargo and ballast tanks is not to be less than:	
$Z_{net} = \frac{1000 P_{slh} s_{trip} l_{trip}^2}{2 C_s \sigma_{yd}}  (cm^3)$	$Z_{net} = \frac{1000 P_{slh} s_{trip} l_{trip}^2}{2 C_s \sigma_{yd}}  (cm^3)$	
Where:	Where:	
$P_{sl}$ : the greater of $P_{slh-lng}$ , $P_{slh-t}$ , $P_{slh-wf}$ , $P_{slh-grd}$ and $P_{slh-min}$ as defined in 6.2.2. The average pressure may be calculated at mid point of the tripping bracket taking into account the distribution as shown in FigFigs. 8.6.1 and 8.6.2 $Stri$ : mean spacing, between tripping brackets or other primary support members or bulkheads, in m $l_{tri}$ : length of tripping bracket, see Fig. 8.6.3, in	$P_{slh} : \text{the greater of } P_{slh-lng}, P_{slh-l}, P_{slh-wf}, P_{slh-grd}$ and $P_{slh-min}$ as defined in 6.2.2. The average pressure may be calculated at mid point of the tripping bracket taking into account the distribution as shown in Fig. 8.6.1 and 8.6.2 $S_{trip}$ : mean spacing, between tripping brackets or other primary support members or bulkheads, in m $l_{trip}$ : length of tripping bracket, see Fig. 8.6.3, in	
$C_s$ : permissible bending stress coefficient for tripping brackets = 0.75 $\sigma_y$ : specified minimum yield stress of the material, in $N/mm^2$	$C_s$ : permissible bending stress coefficient for tripping brackets = 0.75 $\sigma_{yd}$ : specified minimum yield stress of the material, in $N/mm^2$	
6.2.5.4bis The effective breadth of the attached plate to be used for calculating the section modulus of the tripping bracket supporting primary support members is to be taken as $1/3$ the length of the tripping bracket, $l_{trip}$ , as given in 8/6.2.5.4.	6.2.5.4bis The effective breadth of the attached plate to be used for calculating the section modulus of the tripping bracket supporting primary support members is to be taken as $1/3$ the length of the tripping bracket, $l_{trip}$ , as given in 8/6.2.5.4.	

#### Rules for the survey and construction of steel ships Part CSR-T Section 8 6.2.5.5

	Correction	Present	Note
cut-outs and slots	The net shear area, <i>A</i> <sub>shr-net</sub> , after deduction of s, of tripping brackets supporting primary in cargo and ballast tanks is not to be less	6.2.5.5 The net shear area, <i>A</i> <sub>shr-net</sub> , after deduction of cut-outs and slots, of tripping brackets supporting primary support members in cargo and ballast tanks is not to be less than:	Wording correction
A <sub>shr-net</sub>	$= 10 \frac{P_{slh} s_{trip} l_{trip}}{C_t \tau_{yd}}  (cm^2)$	$A_{shr-net} = 10 \frac{P_{slh} s_{trip} l_{trip}}{C_t \tau_{yd}}  (cm^2)$	
Whe	ere:	Where:	
P <sub>slh</sub> Strip	: the greater of $P_{slh-lng}$ , $P_{slh-i}$ , $P_{slh-wf}$ , $P_{slh-grd}$ and $P_{slh-min}$ as defined in 6.2.2. The average pressure may be calculated at mid point of the tripping bracket taking into account the distribution as shown in <b>FigFigs. 8.6.1</b> and <b>8.6.2</b> : mean spacing, between tripping brackets or other primary support members or	<ul> <li>P<sub>sl</sub> : the greater of P<sub>slh-lng</sub>, P<sub>slh-t</sub>, P<sub>slh-wf</sub>, P<sub>slh-grd</sub> and P<sub>slh-min</sub> as defined in 6.2.2. The average pressure may be calculated at mid point of the tripping bracket taking into account the distribution as shown in Fig. 8.6.1 and 8.6.2</li> <li>S<sub>tri</sub> : mean spacing, between tripping brackets or other primary support members or bulkheads, in m</li> </ul>	
ltrip	bulkheads, in <i>m</i> : length of tripping bracket, see Fig. 8.6.3, in <i>m</i>	$l_{tri}$ : length of tripping bracket, see Fig. 8.6.3, in m	
$C_t$	: permissible shear stress coefficient, as given in Table 8.6.3	$C_t$ : permissible shear stress coefficient, as given in Table 8.6.3	
$\mathcal{T}_{yd}$	$=\frac{\sigma_{yd}}{\sqrt{3}} \qquad (N/mm^2)$	$\tau_{yd} = \frac{\sigma_{yd}}{\sqrt{3}}$ (N/mm <sup>2</sup> )	
<b>O</b> yd	: specified minimum yield stress of the material, in $N/mm^2$	$\sigma_y$ : specified minimum yield stress of the material, in $N/mm^2$	

#### Rules for the survey and construction of steel ships Part CSR-T Section 8 6.3.8.1

Correction	Present	Note
6.3.8.1 Longitudinals are, in general, to be	•	Wording correction
1	continuous. Where this not practicable end brackets	_
complying with <u>Section 4/3.2.3</u> are to be provided.	complying with 4/3.2.3 are to be provided.	

# Rules for the survey and construction of steel ships Part CSR-T Section 11 3.3.2.1

	Correction	Present	Note
	ge keels, where fitted, are to be attached	<b>C</b>	Wording correction
	0	to the shell by a ground bar, or doubler, as shown in Fig. 11.3.4	
11.3.4 and 11.3.5.	In general, the ground bar is to be	and <b>11.3.5</b> . In general, the ground bar is to be continuous.	
continuous.			

# Rules for the survey and construction of steel ships Part CSR-B&T Part 1 Chapter 1 Section 1 2.2.1

Correction	Present	Note
2.2.1 Part 1	2.2.1Part 1	
Part 1 of the Rules provides requirements common to	Part 1 of the Rules provides requirements common to	
all ship types as follow:	all ship types as follow:	
Chapter 1: Rule General Principles.	Chapter 1: Rule General Principles.	
Chapter 2: General Arrangement Design.	Chapter 2: General Arrangement Design.	
Chapter 3: Structural Design Principles.	Chapter 3: Structural Design Principles.	
Chapter 4: Loads.	Chapter 4: Loads.	
• Chapter 5: Hull Girder Strength.	• Chapter 5: Hull Girder Strength.	
Chapter 6: Hull Local Scantling.	Chapter 6: Hull Local Scantling.	
Chapter 7: Direct Strength Analysis.	Chapter 7: Direct Strength Analysis.	
Chapter 8: Buckling.	Chapter 8: Buckling.	
Chapter 9: Fatigue.	• Chapter 9: Fatigue.	
• Chapter 10: Other Structure.	Chapter 10: Other Structure.	
• Chapter 11: Superstructure, Deckhouses and Hull	• Chapter 11: Superstructure, Deckhouses and Hull	
Outfitting.	Outfitting.	
Chapter 12: Construction.	Chapter 12: Construction.	
• Chapter 13: Ship in Operation - Renewal Criteria.	• Chapter 13: Ship in Operation - Renewal Criteria.	
The provisions of the Ch 1, 2, 3, 4, 5, 6, 8, 12, 13 and	The provisions of the Ch 1, 2, 3, 4, 5, 6, 8, 12, 13 and	
Ch 10, Sec 4 are applicable all over the ships length.	Ch 10, Sec 4 are applicable all over the ships length.	
The Ch 7, 9, 10 and <u>Ch 11</u> define their own scope of	The Ch 7, 9, 10 and 11 define their own scope of	Wording correction
application.	application.	

# Rules for the survey and construction of steel ships Part CSR-B&T Part 1 Chapter 12 Section 3 Table 5

	Correction			Present		Note
Table 5 Con	nections of Bilge	Keels	Table 5 Com	nections of Bilge	e Keels	
	Leg length o	f weld, in <i>mm</i>		Leg length o	f weld, in <i>mm</i>	
Structural items being joined	At ends <sup>(1)</sup>	Elsewhere	Structural items being joined	At ends <sup>(1)</sup>	Elsewhere	
Ground bar to the shell	<b>0.62</b> <i>t</i> <sub>1<i>as_built</i></sub>	0.48 <i>t</i> 1 <i>as_built</i>	Ground bar to the shell	0.62 <i>t</i> 1 <i>as_built</i>	0.48 <i>t</i> 1 <i>as_built</i>	
Bilge keel web to ground bar	0.48 t <sub>2as_built</sub>	0.30 <i>t</i> 2 <i>as_built</i>	Bilge keel web to ground bar	0.48 t2as_built	0.30 <i>t</i> 2 <i>as_built</i>	
		keel, in mm.		ness of ground bar, ness of web of bilge and Fig. 20 in P	e keel, in mm.	Wording correction

## Rules for the survey and construction of steel ships Part CS Chapter 23 23.2.5

Correction	Present	Note
e	3 The minimum breaking load and the number of	
than 2,000 (EN $>$ 2,000) are to be in accordance with <b>Chapter</b>	mooring lines for ships with an equipment number greater than $2,000$ (EN > $2,000$ ) are to be in accordance with <b>Chapter</b>	Reference correction
27 <u>14, Part 1</u> , Part C of the Rules.	27, Part C of the Rules.	

### Rules for the survey and construction of steel ships Part CS Chapter 23 23.2.5

Correction	Present	Note
accordance with the requirements in 4.2.4 <u>3-1</u> . and 4. <u>3.32.4</u> , <b>Part H</b> or machinery with a source of ignition is normally present. However, for oil tankers carrying cargo oil having a	oil piping are to be segregated by an air-tight bulkhead from areas where stoves, boilers, propelling machinery, electric installations other than those of explosion-proof type in accordance with the requirements in 4.2.4 and 4.3.3, Part H or machinery with a source of ignition is normally	Reference correction

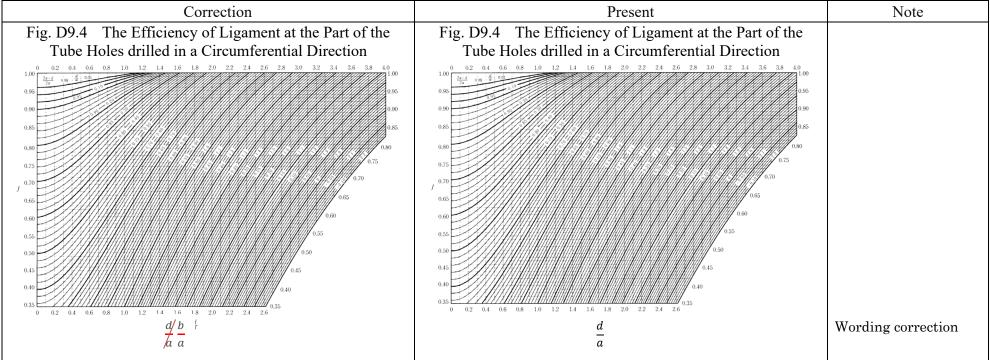
# Rules for the survey and construction of steel ships Part D Chapter 7 7.2.1-1

Correction	Present	Note
1 The thickness of the propeller blades at a radius of $0.25$ <i>R</i> and $0.6 R$ (where <i>R</i> is the radius of the propeller) for solid propellers and at a radius of $0.35 R$ and $0.6 R$ for controllable pitch propellers is not to be less than the values given by the following formula. The thickness of the highly skewed propeller blades is to conform with the provisions specified in 2 below.	1 The thickness of the propeller blades at a radius of 0.25 $R$ and 0.6 $R$ (where $R$ is the radius of the propeller) for solid propellers and at a radius of 0.35 $R$ and 0.6 $R$ for controllable pitch propellers is not to be less than the values given by the following formula. The thickness of the highly skewed propeller blades is to conform with the provisions specified in 2 below.	Wording correction
$t = \sqrt{\frac{K_1}{K_2} \frac{H}{ZN_0 \ell} SW}$ where	$t = \sqrt{\frac{K_1}{K_2} \frac{H}{ZN_0 \ell} SW}$ where	
t : Thickness of blades (excluding the fillet of blade root) (am)	t : Thickness of blades (excluding the fillet of blade	
root) ( <i>cm</i> ) <i>H</i> : Maximum continuous output of main propulsion machinery ( <i>kW</i> )	root) ( <i>cm</i> ) <i>H</i> : Maximum continuous output of main propulsion machinery ( <i>kW</i> )	
Z : Number of blades	Z : Number of blades	
$N_0$ : Number of maximum continuous revolutions ( <i>rpm</i> ) divided by 100	$N_0$ :Number of maximum continuous revolutions ( <i>rpm</i> ) divided by 100	
$\ell$ :Width of blade at radius in question ( <i>cm</i> )	$\ell$ :Width of blade at radius in question ( <i>cm</i> )	
$K_1$ : Coefficient of the radius in question given by the following formula:	$K_1$ : Coefficient of the radius in question given by the following formula:	
$K_{1} = \frac{30.3}{\sqrt{1 + k_{1} \left(\frac{P'}{D}\right)^{2}}} \left(k_{2} \frac{D}{P} + k_{3} \frac{P'}{D}\right)$	$K_{1} = \frac{30.3}{\sqrt{1 + k_{1} \left(\frac{P'}{D}\right)^{2}}} \left(k_{2} \frac{D}{P} + k_{3} \frac{P'}{D}\right)$	
D : Diameter of propeller ( $m$ )	D : Diameter of propeller ( $m$ )	
$k_1, k_2, k_3$ : Values given in <b>Table D7.1</b>	$k_1, k_2, k_3$ : Values given in Table D7.1	
P': Pitch at radius in question (m)	P': Pitch at radius in question (m)	
P : Pitch at radius of 0.7 $R(m)K_2 : Coefficient given by the following formula:$	P : Pitch at radius of 0.7 R (m) $K_2$ :Coefficient given by the following formula:	
$K_2 = K - \left(k_4 \frac{E}{t_0} + k_5\right) \frac{D^2 N_0^2}{1000}$	$K_2 = K - \left(k_4 \frac{E}{t_0} + k_5\right) \frac{D^2 N_0^2}{1000}$	

	$k_4, k_5$ : Values given in <b>Table D7.1</b>		$k_4, k_5$ : Values given in <b>Table D7.1</b>	
	E : Rake at the tip of the blade (Measuring		E : Rake at the tip of the blade (Measuring	
	from face side base line and taking positive		from face side base line and taking positive	
	value for backward rake) ( <i>cm</i> )		value for backward rake) ( <i>cm</i> )	
	$t_0$ : Imaginary thickness of blade at propeller		$t_0$ : Imaginary thickness of blade at propeller	
	shaft centreline (to may be obtained by		shaft centreline (to may be obtained by	
	drawing the each side line which connects		drawing the each side line which connects	
	the blade tip thickness with the thickness		the blade tip thickness with the thickness	
	at 0.25 $R$ (or 0.35 $R$ for controllable pitch		at 0.25 $R$ (or 0.35 $R$ for controllable pitch	
	propeller), in the projection of the blade		propeller), in the projection of the blade	
	section along the maximum blade		section along the maximum blade	
	thickness line.) ( <i>cm</i> )		thickness line.) ( <i>cm</i> )	
	<i>K</i> : Value depending upon the type of the		K : Value depending upon the type of the	
	propeller material given in Table D7.2		propeller material given in Table D7.2	
S	: Coefficient concerning the increase in stress	S	: Coefficient concerning the increase in stress	
	during times of bad weather. Where S>1.0 or		during times of bad weather. Where S>1.0 or	
	$S \le 0.8$ , the value of S is to be taken as 1.0 or 0.8		S < 0.8, the value of S is to be taken as 1.0 or 0.8	
	respectively.		respectively.	
	$(D_{\rm S})$		$(D_S)$	
	$S = 0.095 \left(\frac{D_S}{d_S}\right) + 0.677$		$S = 0.095 \left(\frac{D_S}{d_S}\right) + 0.677$	
	$D_S$ : Depth of ship for strength		$D_S$ : Depth of ship for strength	
	computation (See 2.1.7, Part A)		computation (See 2.1.7, Part A)	
	$d_S$ : Load draught (See 2.1.12, Part A)		$d_S$ : Load draught (See 2.1.12, Part A)	
W	: Coefficient concerning alternate stress, given by	W	: Coefficient concerning alternate stress, given by	
	the following formula or to be taken as 2.80,		the following formula or to be taken as 2.80,	
	whichever is greater.		whichever is greater.	
	$W = 1 + 1.724 \left( \frac{A_2 A_3 + A_4 A_1 P'/D}{A_3 + A_4 P'/D} \right)$		$W = 1 + 1.724 \left( \frac{A_2 A_3 + A_4 A_1 P'/D}{A_3 + A_4 P'/D} \right)$	
	$A_1 = \frac{\Delta\omega}{\omega + C_1}$		$\omega + C_{\pm} \Delta W$	
	_		$A_1 = \frac{\frac{\Delta\omega}{\omega + C_{\pm}} \Delta w}{w + C_1}$	
	$A_2 = \frac{\Delta\omega}{\omega + C_2}$		$\Delta \omega \Delta w$	
	$\omega + c_2$		$A_2 = \frac{\Delta\omega}{\omega + C_2} \frac{\Delta w}{w + C_2}$	

$A_{3} = \frac{(C_{1} + 1)(C_{2} + \omega)}{C_{3}(C_{2} + 1)(C_{1} + \omega)}$ $A_{4} = \begin{cases} 3.52(0.2SR) \\ 2.41(0.35R) \\ 1.26(0.6R) \end{cases}$ $A_{4} = \begin{cases} 3.52(0.2SR) \\ 2.41(0.35R) \\ 1.26(0.6R) \end{cases}$ $A_{4} = \begin{cases} 3.52(0.2SR) \\ 2.41(0.35R) \\ 1.26(0.6R) \end{cases}$ $A_{4} = \begin{cases} 3.52(0.2SR) \\ 2.41(0.35R) \\ 1.26(0.6R) \end{cases}$ $A_{4} = \begin{cases} 3.52(0.2SR) \\ 2.41(0.35R) \\ 1.26(0.6R) \end{cases}$ $A_{4} = \begin{cases} 3.52(0.2SR) \\ 2.41(0.35R) \\ 1.26(0.6R) \end{cases}$ $A_{4} = \begin{cases} 3.52(0.2SR) \\ 2.41(0.35R) \\ 1.26(0.6R) \end{cases}$ $A_{5} = 0.122 \frac{P}{D} + 0.22 - 1$ $C_{2} = \frac{D}{0.95P} \left\{ \frac{P}{D} \left( 1.3 - \frac{2a_{e}}{Z} \right) + 0.22 \right\} - 1$ $C_{3} = 0.122 \frac{P}{D} + 0.0236$ $a_{e} : Expanded area ratio of propeller$ $\omega : Nominal mean wake in the propeller disc \Delta \omega : Peak to peak value of wake fluctuation in the propeller disk at a radius of 0.7 R. The values of \omega and \Delta \omega are to be calculated byusing the following formulae, except in thecase of multi-screw ships or when expresslyapproved by the Society. \Delta \omega = 7.32 \left\{ 1.56 - 0.04 \left( \frac{B}{D} + 4 \right) \sqrt{\frac{B}{d_{5}}} - C_{b} \right\} \omega \omega = 0.625 \left\{ 0.04 \left( \frac{B}{D} + 4 \right) \sqrt{\frac{B}{d_{5}}} + C_{b} \right\} - 0.527 B : Breadth of ship (m) C_{b} : Block coefficient of ship A_{3} = \frac{(C_{4} + 1)(C_{4} + \omega)}{(C_{4} + 1)(C_{4} + \omega)} C_{3}(C_{2} + 1)(C_{1} + w) A_{3} = \frac{(C_{4} + 1)(C_{4} + \omega)}{(C_{4} - 1)(C_{4} + \omega)} C_{3}(C_{2} + 1)(C_{1} + w) A_{4} = \begin{cases} 3.52(0.2SR) \\ 2.41(0.35R) \\ 1.26(0.6R) \end{cases} C_{1} = \frac{D}{0.95P} \left\{ \frac{P}{D} \left( 1.3 - \frac{2a_{e}}{Z} \right) + 0.22 \right\} - 1 C_{2} = \frac{D}{0.95P} \left\{ \frac{P}{D} \left( 1.3 - \frac{2a_{e}}{Z} \right) + 0.22 \right\} - 1 C_{2} = \frac{D}{0.95P} \left\{ \frac{P}{D} \left( 1.3 - \frac{2a_{e}}{Z} \right) + 0.22 \right\} - 1 C_{2} = \frac{D}{0.95P} \left\{ \frac{P}{D} \left( 1.3 - \frac{2a_{e}}{Z} \right) + 0.22 \right\} - 1 C_{2} = \frac{D}{0.95P} \left\{ \frac{P}{D} \left( 1.3 - \frac{2a_{e}}{Z} \right) + 0.22 \right\} - 1 C_{2} = \frac{D}{0.95P} \left\{ \frac{P}{D} \left( 1.3 - \frac{2a_{e}}{Z} \right) + 0.22 \right\} - 1 C_{2} = \frac{D}{0.95P} \left\{ \frac{P}{D} \left( 1.3 - \frac{2a_{e}}{Z} \right) + 0.22 \right\} - 1 C_{2} = \frac{D}{0.95P} \left\{ \frac{P}{D} \left( 1.3 - \frac{2a_{e}}{Z} \right) - 1 C_{2} = \frac{D}{0.95P} \left\{ \frac{P}{D} \left( 1.3 - \frac{2a_{e}}{Z} \right) - 1 \right\} C_{2} = \frac{D}{0.95P} \left\{ \frac{P}{D} \left( 1.3 - \frac{2a_{e}}{$			
$C_{1} = \frac{D}{0.95P} \left\{ \frac{P}{D} \left( 1.3 - \frac{2a_{e}}{Z} \right) + 0.22 \right\} - 1$ $C_{2} = \frac{D}{0.95P} \left\{ 1.1 \frac{P}{D} - \frac{1.19a_{e}}{Z} + 0.2 \right\} - 1$ $C_{3} = 0.122 \frac{P}{D} + 0.0236$ $a_{e} : Expanded area ratio of propeller \omega : \text{Nominal mean wake in the propeller disc} \Delta\omega : \text{Peak to peak value of wake fluctuation in the propeller disk at a radius of 0.7 R. The values of \omega and \Delta\omega are to be calculated by using the following formulae, except in the case of multi-screw ships or when expressly approved by the Society. \Delta\omega = 7.32 \left\{ 1.56 - 0.04 \left(\frac{B}{D} + 4\right) \sqrt{\frac{B}{d_{s}}} - C_{b} \right\} \omega \omega = 0.625 \left\{ 0.04 \left(\frac{B}{D} + 4\right) \sqrt{\frac{B}{d_{s}}} + C_{b} \right\} - 0.527 B : Breadth of ship (m) B : Breadth of ship (m) C_{1} = \frac{D}{0.95P} \left\{ \frac{P}{D} \left( 1.3 - \frac{2a_{e}}{Z} \right) + 0.22 \right\} - 1 C_{2} = \frac{D}{0.95P} \left\{ \frac{P}{D} \left( 1.3 - \frac{2a_{e}}{Z} \right) + 0.22 \right\} - 1 C_{2} = \frac{D}{0.95P} \left\{ \frac{D}{D} \left( 1.1 \frac{P}{D} - \frac{1.19a_{e}}{Z} + 0.2 \right) - 1 C_{3} = 0.122 \frac{P}{D} + 0.0236 a_{e} : Expanded area ratio of propeller \omega : Nominal mean wake in the propeller disc  \Delta\omega = 7.32 \left\{ 1.56 - 0.04 \left(\frac{B}{D} + 4\right) \sqrt{\frac{B}{d_{s}}} - C_{b} \right\} \omega \omega = 0.625 \left\{ 0.04 \left(\frac{B}{D} + 4\right) \sqrt{\frac{B}{d_{s}}} + C_{b} \right\} - 0.527 B : Breadth of ship (m)$	$A_3 = \frac{(C_1 + 1)(C_2 + \omega)}{C_3(C_2 + 1)(C_1 + \omega)}$	$A_{3} = \frac{(C_{\pm} + 1)(C_{\pm} + \omega)}{C_{\pm}(C_{\pm} + 1)(C_{\pm} + \omega)} \frac{(C_{1} + 1)(C_{2} + w)}{C_{3}(C_{2} + 1)(C_{1} + w)}$	
$C_{1} = \frac{D}{0.95P} \left\{ \frac{P}{D} \left( 1.3 - \frac{2a_{e}}{Z} \right) + 0.22 \right\} - 1$ $C_{2} = \frac{D}{0.95P} \left\{ 1.1 \frac{P}{D} - \frac{1.19a_{e}}{Z} + 0.2 \right\} - 1$ $C_{3} = 0.122 \frac{P}{D} + 0.0236$ $a_{e} : Expanded area ratio of propeller \omega : \text{Nominal mean wake in the propeller disc} \Delta\omega : \text{Peak to peak value of wake fluctuation in the propeller disk at a radius of 0.7 R. The values of \omega and \Delta\omega are to be calculated by using the following formulae, except in the case of multi-screw ships or when expressly approved by the Society. \Delta\omega = 7.32 \left\{ 1.56 - 0.04 \left(\frac{B}{D} + 4\right) \sqrt{\frac{B}{d_{s}}} - C_{b} \right\} \omega \omega = 0.625 \left\{ 0.04 \left(\frac{B}{D} + 4\right) \sqrt{\frac{B}{d_{s}}} + C_{b} \right\} - 0.527 B : Breadth of ship (m) B : Breadth of ship (m) C_{1} = \frac{D}{0.95P} \left\{ \frac{P}{D} \left( 1.3 - \frac{2a_{e}}{Z} \right) + 0.22 \right\} - 1 C_{2} = \frac{D}{0.95P} \left\{ \frac{P}{D} \left( 1.3 - \frac{2a_{e}}{Z} \right) + 0.22 \right\} - 1 C_{2} = \frac{D}{0.95P} \left\{ \frac{D}{D} \left( 1.1 \frac{P}{D} - \frac{1.19a_{e}}{Z} + 0.2 \right) - 1 C_{3} = 0.122 \frac{P}{D} + 0.0236 a_{e} : Expanded area ratio of propeller \omega : Nominal mean wake in the propeller disc  \Delta\omega = 7.32 \left\{ 1.56 - 0.04 \left(\frac{B}{D} + 4\right) \sqrt{\frac{B}{d_{s}}} - C_{b} \right\} \omega \omega = 0.625 \left\{ 0.04 \left(\frac{B}{D} + 4\right) \sqrt{\frac{B}{d_{s}}} + C_{b} \right\} - 0.527 B : Breadth of ship (m)$	(3.52(0.25R))	(3.52(0.25R))	
$C_{1} = \frac{D}{0.95P} \left\{ \frac{P}{D} \left( 1.3 - \frac{2a_{e}}{Z} \right) + 0.22 \right\} - 1$ $C_{2} = \frac{D}{0.95P} \left\{ 1.1 \frac{P}{D} - \frac{1.19a_{e}}{Z} + 0.2 \right\} - 1$ $C_{3} = 0.122 \frac{P}{D} + 0.0236$ $a_{e} : \text{Expanded area ratio of propeller}$ $\omega : \text{Nominal mean wake in the propeller disc}$ $\Delta \omega : \text{Peak to peak value of wake fluctuation in the propeller disk at a radius of 0.7 R. The values of \omega and \Delta \omega are to be calculated by using the following formulae, except in the case of multi-screw ships or when expressly approved by the Society.$ $\Delta \omega = 7.32 \left\{ 1.56 - 0.04 \left( \frac{B}{D} + 4 \right) \sqrt{\frac{B}{d_{s}}} - C_{b} \right\} \omega$ $\omega = 0.625 \left\{ 0.04 \left( \frac{B}{D} + 4 \right) \sqrt{\frac{B}{d_{s}}} + C_{b} \right\} - 0.527$ $B : Breadth of ship (m)$ $C_{1} = \frac{D}{0.95P} \left\{ \frac{P}{D} \left( 1.3 - \frac{2a_{e}}{Z} \right) + 0.22 \right\} - 1$ $C_{2} = \frac{D}{0.95P} \left\{ \frac{P}{D} \left( 1.3 - \frac{2a_{e}}{Z} \right) + 0.22 \right\} - 1$ $C_{2} = \frac{D}{0.95P} \left\{ \frac{P}{D} \left( 1.3 - \frac{2a_{e}}{Z} \right) + 0.22 \right\} - 1$ $C_{3} = 0.122 \frac{P}{D} + 0.0236$ $a_{e} : \text{Expanded area ratio of propeller}$ $\omega : \text{Nominal mean wake in the propeller disc}$ $A\omega = 7.32 \left\{ 1.56 - 0.04 \left( \frac{B}{D} + 4 \right) \sqrt{\frac{B}{d_{s}}} - C_{b} \right\} \omega$ $\omega = 0.625 \left\{ 0.04 \left( \frac{B}{D} + 4 \right) \sqrt{\frac{B}{d_{s}}} + C_{b} \right\} - 0.527$ $B : \text{Breadth of ship (m)}$	$A = \begin{pmatrix} 0.02(0.201) \\ 2.41(0.35R) \end{pmatrix}$	$A = \begin{pmatrix} 0.0201 \\ 241(0.35R) \end{pmatrix}$	
$C_{1} = \frac{D}{0.95P} \left\{ \frac{P}{D} \left( 1.3 - \frac{2a_{e}}{Z} \right) + 0.22 \right\} - 1$ $C_{2} = \frac{D}{0.95P} \left\{ 1.1 \frac{P}{D} - \frac{1.19a_{e}}{Z} + 0.2 \right\} - 1$ $C_{3} = 0.122 \frac{P}{D} + 0.0236$ $a_{e} : Expanded area ratio of propeller \omega : \text{Nominal mean wake in the propeller disc} \Delta\omega : \text{Peak to peak value of wake fluctuation in the propeller disk at a radius of 0.7 R. The values of \omega and \Delta\omega are to be calculated by using the following formulae, except in the case of multi-screw ships or when expressly approved by the Society. \Delta\omega = 7.32 \left\{ 1.56 - 0.04 \left(\frac{B}{D} + 4\right) \sqrt{\frac{B}{d_{s}}} - C_{b} \right\} \omega \omega = 0.625 \left\{ 0.04 \left(\frac{B}{D} + 4\right) \sqrt{\frac{B}{d_{s}}} + C_{b} \right\} - 0.527 B : Breadth of ship (m) B : Breadth of ship (m) C_{1} = \frac{D}{0.95P} \left\{ \frac{P}{D} \left( 1.3 - \frac{2a_{e}}{Z} \right) + 0.22 \right\} - 1 C_{2} = \frac{D}{0.95P} \left\{ \frac{P}{D} \left( 1.3 - \frac{2a_{e}}{Z} \right) + 0.22 \right\} - 1 C_{2} = \frac{D}{0.95P} \left\{ \frac{D}{D} \left( 1.1 \frac{P}{D} - \frac{1.19a_{e}}{Z} + 0.2 \right) - 1 C_{3} = 0.122 \frac{P}{D} + 0.0236 a_{e} : Expanded area ratio of propeller \omega : Nominal mean wake in the propeller disc  \Delta\omega = 7.32 \left\{ 1.56 - 0.04 \left(\frac{B}{D} + 4\right) \sqrt{\frac{B}{d_{s}}} - C_{b} \right\} \omega \omega = 0.625 \left\{ 0.04 \left(\frac{B}{D} + 4\right) \sqrt{\frac{B}{d_{s}}} + C_{b} \right\} - 0.527 B : Breadth of ship (m)$	$A_4 = \begin{pmatrix} 2.11(0.000) \\ 1.26(0.6D) \end{pmatrix}$	$A_4 = \begin{pmatrix} 2.11(0.55R) \\ 1.26(0.6D) \end{pmatrix}$	
$C_{2} = \frac{D}{0.95P} \left( 1.1 \frac{P}{D} - \frac{1.19a_{e}}{Z} + 0.2 \right) - 1$ $C_{3} = 0.122 \frac{P}{D} + 0.0236$ $a_{e} : \text{Expanded area ratio of propeller}$ $\omega : \text{Nominal mean wake in the propeller disc}$ $\Delta \omega : \text{Peak to peak value of wake fluctuation in the propeller disk at a radius of 0.7 R. The values of \omega and \Delta \omega are to be calculated by using the following formulae, except in the case of multi-screw ships or when expressly approved by the Society.$ $\Delta \omega = 7.32 \left\{ 1.56 - 0.04 \left(\frac{B}{D} + 4\right) \sqrt{\frac{B}{d_{s}}} - C_{b} \right\} \omega$ $\omega = 0.625 \left\{ 0.04 \left(\frac{B}{D} + 4\right) \sqrt{\frac{B}{d_{s}}} + C_{b} \right\} - 0.527$ $B : \text{Breadth of ship } (m)$ $D = \frac{1.19a_{e}}{Z} + 0.2 - 1$ $C_{2} = \frac{D}{0.95P} \left( 1.1 \frac{P}{D} - \frac{1.19a_{e}}{Z} + 0.2 \right) - 1$ $C_{3} = 0.122 \frac{P}{D} + 0.0236$ $a_{e} : \text{Expanded area ratio of propeller}$ $\omega = 0.625 \left\{ 0.04 \left(\frac{B}{D} + 4\right) \sqrt{\frac{B}{d_{s}}} - C_{b} \right\} \omega$ $\omega = 0.625 \left\{ 0.04 \left(\frac{B}{D} + 4\right) \sqrt{\frac{B}{d_{s}}} + C_{b} \right\} - 0.527$ $B : \text{Breadth of ship } (m)$		•	
$C_{3} = 0.122 \frac{P}{D} + 0.0236$ $a_{e} : \text{Expanded area ratio of propeller}$ $\omega : \text{Nominal mean wake in the propeller disc}$ $\Delta \omega : Peak to peak value of wake fluctuation in the propeller disk at a radius of 0.7 R. The values of \omega and \Delta \omega are to be calculated by using the following formulae, except in the case of multi-screw ships or when expressly approved by the Society.\Delta \omega = 7.32 \left\{ 1.56 - 0.04 \left(\frac{B}{D} + 4\right) \sqrt{\frac{B}{d_{s}}} - C_{b} \right\} \omega \omega = 0.625 \left\{ 0.04 \left(\frac{B}{D} + 4\right) \sqrt{\frac{B}{d_{s}}} + C_{b} \right\} - 0.527 B_{c}: \text{Breadth of ship } (m) B_{c}: \text{Breadth of ship } (m) B_{c}: \text{Breadth of ship } (m) C_{3} = 0.122 \frac{P}{D} + 0.0236 a_{e}: \text{Expanded area ratio of propeller} G_{3} = 0.122 \frac{P}{D} + 0.0236 a_{e}: \text{Expanded area ratio of propeller} G_{3} = 0.122 \frac{P}{D} + 0.0236 a_{e}: \text{Expanded area ratio of propeller} G_{a} = 0.122 \frac{P}{D} + 0.0236 a_{e}: \text{Expanded area ratio of propeller} G_{3} = 0.122 \frac{P}{D} + 0.0236 a_{e}: \text{Expanded area ratio of propeller} G_{a} = 0.122 \frac{P}{D} + 0.0236 a_{e}: \text{Expanded area ratio of propeller} G_{a} = 0.122 \frac{P}{D} + 0.0236 a_{e}: \text{Expanded area ratio of propeller} G_{a} = 0.122 \frac{P}{D} + 0.0236 a_{e}: \text{Expanded area ratio of propeller} G_{a} = 0.122 \frac{P}{D} + 0.0236 G_{a} = 0.023 \frac{P}{D} + 0.0236 G_{a} = 0.025 \frac{P}{D} + 0.0246 G_{a} = 0.025 \frac{P}{D} + 0.0246 G_{a} = 0.025 \frac{P}{D} + 0.0247$	$C_1 = \frac{D}{0.95P} \left\{ \frac{P}{D} \left( 1.3 - \frac{2a_e}{Z} \right) + 0.22 \right\} - 1$	$C_1 = \frac{D}{0.95P} \left\{ \frac{P}{D} \left( 1.3 - \frac{2a_e}{Z} \right) + 0.22 \right\} - 1$	
$a_{e} : \text{Expanded area ratio of propeller}$ $\omega : \text{Nominal mean wake in the propeller disc}$ $\Delta \omega : Peak to peak value of wake fluctuation in the propeller disk at a radius of 0.7 R. The values of \omega and \Delta \omega are to be calculated by using the following formulae, except in the case of multi-screw ships or when expressly approved by the Society.\Delta \omega = 7.32 \left\{ 1.56 - 0.04 \left(\frac{B}{D} + 4\right) \sqrt{\frac{B}{d_{s}}} - C_{b} \right\} \omega \omega = 0.625 \left\{ 0.04 \left(\frac{B}{D} + 4\right) \sqrt{\frac{B}{d_{s}}} + C_{b} \right\} - 0.527 B : \text{Breadth of ship } (m) B : \text{Breadth of ship } (m)$	$C_2 = \frac{D}{0.95P} \left( 1.1 \frac{P}{D} - \frac{1.19a_e}{Z} + 0.2 \right) - 1$	$C_2 = \frac{D}{0.95P} \left( 1.1 \frac{P}{D} - \frac{1.19a_e}{Z} + 0.2 \right) - 1$	
$\omega : \text{Nominal mean wake in the propeller disc}$ $\Delta \omega : Peak to peak value of wake fluctuation in the propeller disk at a radius of 0.7 R. The values of \omega and \Delta \omega are to be calculated by using the following formulae, except in the case of multi-screw ships or when expressly approved by the Society.\Delta \omega = 7.32 \left\{ 1.56 - 0.04 \left(\frac{B}{D} + 4\right) \sqrt{\frac{B}{d_s}} - C_b \right\} \omega \omega = 0.625 \left\{ 0.04 \left(\frac{B}{D} + 4\right) \sqrt{\frac{B}{d_s}} + C_b \right\} - 0.527 B : \text{Breadth of ship } (m) B : \text{Breadth of ship } (m)$	$C_3 = 0.122 \frac{P}{D} + 0.0236$	$C_3 = 0.122 \frac{P}{D} + 0.0236$	
$\omega : \text{Nominal mean wake in the propeller disc}$ $\Delta \omega : Peak to peak value of wake fluctuation in the propeller disk at a radius of 0.7 R. The values of \omega and \Delta \omega are to be calculated by using the following formulae, except in the case of multi-screw ships or when expressly approved by the Society.\Delta \omega = 7.32 \left\{ 1.56 - 0.04 \left(\frac{B}{D} + 4\right) \sqrt{\frac{B}{d_s}} - C_b \right\} \omega \omega = 0.625 \left\{ 0.04 \left(\frac{B}{D} + 4\right) \sqrt{\frac{B}{d_s}} + C_b \right\} - 0.527 B : \text{Breadth of ship } (m) B : \text{Breadth of ship } (m)$	$a_e$ : Expanded area ratio of propeller	$a_e$ : Expanded area ratio of propeller	
$\Delta \omega : Peak to peak value of wake fluctuation in the propeller disk at a radius of 0.7 R. The values of \omega and \Delta \omega are to be calculated by using the following formulae, except in the case of multi-screw ships or when expressly approved by the Society.\Delta \omega = 7.32 \left\{ 1.56 - 0.04 \left(\frac{B}{D} + 4\right) \sqrt{\frac{B}{d_s}} - C_b \right\} \omega \omega = 0.625 \left\{ 0.04 \left(\frac{B}{D} + 4\right) \sqrt{\frac{B}{d_s}} + C_b \right\} - 0.527 B : \text{Breadth of ship } (m) B : \text{Breadth of ship } (m)$	• • •	$\omega W$ : Nominal mean wake in the propeller disc	
the propeller disk at a radius of 0.7 <i>R</i> . The values of $\omega$ and $\Delta\omega$ are to be calculated by using the following formulae, except in the case of multi-screw ships or when expressly approved by the Society. $\Delta\omega = 7.32 \left\{ 1.56 - 0.04 \left(\frac{B}{D} + 4\right) \sqrt{\frac{B}{d_s}} - C_b \right\} \omega$ $\omega = 0.625 \left\{ 0.04 \left(\frac{B}{D} + 4\right) \sqrt{\frac{B}{d_s}} + C_b \right\} - 0.527$ $B : Breadth of ship (m)$ $B : Breadth of ship (m)$			
values of $\omega$ and $\Delta \omega$ are to be calculated by using the following formulae, except in the case of multi-screw ships or when expressly approved by the Society. $\Delta \omega = 7.32 \left\{ 1.56 - 0.04 \left(\frac{B}{D} + 4\right) \sqrt{\frac{B}{d_s}} - C_b \right\} \omega$ $\omega = 0.625 \left\{ 0.04 \left(\frac{B}{D} + 4\right) \sqrt{\frac{B}{d_s}} + C_b \right\} - 0.527$ $B : Breadth of ship (m)$ $B : Breadth of ship (m)$	-	-	
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case of multi-screw ships or when expressly approved by the Society. $\Delta \omega = 7.32 \left\{ 1.56 - 0.04 \left(\frac{B}{D} + 4\right) \sqrt{\frac{B}{d_s}} - C_b \right\} \omega$ $\omega = 0.625 \left\{ 0.04 \left(\frac{B}{D} + 4\right) \sqrt{\frac{B}{d_s}} + C_b \right\} - 0.527$ $B : Breadth of ship (m)$ $B : Breadth of ship (m)$ $B : Breadth of ship (m)$			
approved by the Society. $\Delta \omega = 7.32 \left\{ 1.56 - 0.04 \left(\frac{B}{D} + 4\right) \sqrt{\frac{B}{d_s}} - C_b \right\} \omega$ ships or when expressly approved by the Society. $\Delta \omega = 0.625 \left\{ 0.04 \left(\frac{B}{D} + 4\right) \sqrt{\frac{B}{d_s}} + C_b \right\} - 0.527$ $B : Breadth of ship (m)$ $B : Breadth of ship (m)$ $B : Breadth of ship (m)$			
$\Delta \omega = 7.32 \left\{ 1.56 - 0.04 \left( \frac{B}{D} + 4 \right) \sqrt{\frac{B}{d_s}} - C_b \right\} \omega$ $\omega = 0.625 \left\{ 0.04 \left( \frac{B}{D} + 4 \right) \sqrt{\frac{B}{d_s}} + C_b \right\} - 0.527$ B : Breadth of ship (m) B : Breadth of ship (m)		·	
$\Delta \omega = 7.32 \left\{ 1.56 - 0.04 \left( \frac{B}{D} + 4 \right) \sqrt{\frac{B}{d_s}} - C_b \right\} \omega$ $\omega = 0.625 \left\{ 0.04 \left( \frac{B}{D} + 4 \right) \sqrt{\frac{B}{d_s}} + C_b \right\} - 0.527$ $B : \text{Breadth of ship } (m)$ $B : \text{Breadth of ship } (m)$ $B : \text{Breadth of ship } (m)$			
$\omega = 0.625 \left\{ 0.04 \left( \frac{B}{D} + 4 \right) \sqrt{\frac{B}{d_s}} + C_b \right\} - 0.527$ $B : Breadth of ship (m)$ $B : Breadth of ship (m)$ $B : Breadth of ship (m)$	$\Delta \omega = 7.32 \left\{ 1.56 - 0.04 \left(\frac{B}{D} + 4\right) \sqrt{\frac{B}{d_s} - C_b} \right\} \omega$		
	$\omega = 0.625 \left\{ 0.04 \left( \frac{B}{D} + 4 \right) \sqrt{\frac{B}{d_s}} + C_b \right\} - 0.527$		
	/	B :Breadth of ship (m)	
	$C_b$ :Block coefficient of ship	± 1 7	

#### Rules for the survey and construction of steel ships Part D Chapter 9 Fig. 9.4



# Rules for the survey and construction of steel ships Part D Chapter 14 14.5.3-4

Correction	Present	Note
4 In the case of exclus	4 In the case of exclus	Wording correction
ive <u>exclusive</u> bilge suction pipes, branch bilge suction pipes	ive bilge suction pipes, branch bilge suction pipes are to	wording correction
are to comply with the requirements given in 13.5 in addition	comply with the requirements given in 13.5 in addition to	
to those requirements given in -3. In calculating the inside	those requirements given in -3. In calculating the inside	
diameters of branch bilge suction pipes for the draining of	diameters of branch bilge suction pipes for the draining of	
cargo hold bilge of ore/oil carriers, the mean widths of such	cargo hold bilge of ore/oil carriers, the mean widths of such	
cargo holds may be used in lieu of <i>B</i> . Bilge suction pipes	cargo holds may be used in lieu of B. Bilge suction pipes	
which are also used as cargo oil pipes or which are connected	which are also used as cargo oil pipes or which are connected	
to eductors are to, in addition to complying with the	to eductors are to, in addition to complying with the	
requirements given in -2 and -3, be to the satisfaction of the	requirements given in -2 and -3, be to the satisfaction of the	
Society.	Society.	

## Rules for the survey and construction of steel ships Part H Chapter 3 3.3.2-2

Correction	Present	Note
2 Emergency sources of electrical power are to be	2 Emergency sources of electrical power are to be	Reference correction
capable, having regard for starting currents and the transitory	capable, having regard for starting currents and the transitory	
nature of certain loads, of supplying simultaneously at least	nature of certain loads, of supplying simultaneously at least	
the following services for those periods specified hereinafter,	the following services for those periods specified hereinafter,	
if they depend upon electrical sources for operation:	if they depend upon electrical sources for operation:	
((1)  to  (6)  are omitted.)	((1)  to  (6)  are omitted.)	
(7) For a period of 30 <i>minutes</i> , indications showing	(7) For a period of 30 minutes, indications showing	
whether closing means are opened or closed and	whether closing means are opened or closed and	
audible alarms showing that such closing means are	audible alarms showing that such closing means are	
operating as required by 2.2.3.1, Part 1, Part C, and	operating as required by 2.2.3.1, Part 1, Part C, and	
indicators showing whether these closing means are	indicators showing whether these closing means are	
opened or closed as required by 2.2.3.2 and $2.23.4.2$ ,	opened or closed as required by 2.2.3.2 and 2.2.4.2,	
Part 1, Part C if they are operated by electrical	Part 1, Part C if they are operated by electrical	
power.	power.	
((8)  to  (10)  are omitted.)	((8)  to  (10)  are omitted.)	

#### Rules for the survey and construction of steel ships Part H Chapter 3 1.2.3-4

Correction	Present	Note
4 In cases where supplying to loads via inverters from		Wording correction
the batteries in UPS, maximum permitted voltage fluctuation	the batteries in UPS, maximum permitted voltage fluctuations	8
on the output side of the circuit may be taken as those specifie	1 on the output side of the circuit may be taken as those specified	
in TableTables H2.1(a) or H2.1(b), 2.1.2-3, Part 1	in Table H2.1(a) or H2.1(b), 2.1.2-3, Part H respectively,	
respectively, notwithstanding any voltage drops of suc	notwithstanding any voltage drops of such batteries.	
batteries.		

Rules for the survey and construction of steel ships Part K Chapter 2 Table K2.
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Corr	Correction		Present	
	Table K2.7 Width of Subsize Test Specimens (For Steel Tubes)		Table K2.7 Width of Subsize Test Specimens (For Steel Tubes)	
Thickness of plate $c \ (mm)^{(1)}$	Width of impact test specimens W (mm)	Thickness of plate $c \ (mm)^{(1)}$	Width of impact test specimens W (mm)	
c< <b>5</b> <sup>(2)</sup>		c< <b>5</b> <sup>(2)</sup>	_	
$5 \le c < 7.5$	5±0.06	$5 \le c < 7.5$	5±0.06	
$7.5 \le c < 10$	7.5±0.11	$7.5 \le c < 10$	7.5±0.11	
Notes:		Notes:		
(1) $c$ is to be calculated by t		(1) $c$ is to be calculated by t		
$c = at - 1 - \frac{d - v}{c}$	$\frac{d^2-b}{2}$	$c = at - 1 - \frac{d - y}{d}$	$\frac{\sqrt{d^2-b}}{2}$	
a  and  b : Consta	nts determined according to the kind of	a  and  b : Consta	ants determined according to the kind of	
steel p	ipe and the point of collection of test	steel pipe and the point of collection of test		
specim	specimen. Refer to Table K2.8.		specimen. Refer to Table K2.8.	
t : Nomi	nal thickness (mm) of steel pipe	t : Nomi	nal thickness (mm) of steel pipe	
d : Outsic	le diameter ( <i>mm</i> ) of steel pipe	d : Outsid	de diameter (mm) of steel pipe	
(2) Refer to note (5) of Table K4.2827 in cases where thickness of		(2) Refer to note (5) of Table K4.28 in cases where thickness of plate		Reference correction
plate is less than 5mm.		is less than 5mm.		

# Rules for the survey and construction of steel ships Part K Chapter 4 Table K4.27

	Correction		Present	Note
Table K4.	27 Heat Treatment and Mechanical Properties	Table K4.	27 Heat Treatment and Mechanical Properties	Wording correction
	(Omitted)		(Omitted)	
Notes:		Notes:		
(1)	<i>L</i> (or <i>T</i> ) denotes that the longitudinal axis of the test specimen is arranged parallel (or normal) to the final direction of rolling.	(1)	L (or $T$ ) denotes that the longitudinal axis of the test specimen is arranged parallel (or normal) to the final direction of rolling.	
(2)	Where the nominal diameter of steel pipes is 200 mm and over, the tensile test specimen may be taken transversely.	(2)	Where the nominal diameter of steel pipes is 200 mm and over, the tensile test specimen may be taken transversely.	
(3)	Where test specimen of non-tubular section is taken from electric resistance welded pipes, the test specimen is to be taken from the part that does not include the welded line.	(3)	Where test specimen of non-tubular section is taken from electric resistance welded pipes, the test specimen is to be taken from the part that does not include the welded line.	
(4)	Where absorbed energy of more than one of a set of test specimens is under the required minimum mean absorbed	(4)	Where absorbed energy of more than one of a set of test specimens is under the required minimum mean absorbed energy,	

	energy, or where the absorbed energy of one test specimen is	
	under 70% of the required value, the test is considered to be	of the required value, the test is considered to be failed.
	failed.	
(5)	In case where the width of test specimens required by	(5) In case where the width of test specimens required by <b>Table K2.5</b>
	Table Tables K2.5 and K2.7 cannot be taken, impact tests may	and K2.7 cannot be taken, impact tests may be omitted subject to
	be omitted subject to satisfying the following (a) and (b):	satisfying the following (a) and (b):
	(a) Chemical composition contains not less than 0.010% of	(a) Chemical composition contains not less than 0.010% of
	acid soluble aluminium or not less than 0.015% total	acid soluble aluminium or not less than 0.015% total
	aluminium.	aluminium.
	(b) In cases where the actual impact test records of material	(b) In cases where the actual impact test records of material
	which is manufactured on a like-for-like basis regarding	which is manufactured on a like-for-like basis regarding
	manufacturing process and chemical composition are found	manufacturing process and chemical composition are found
	to be satisfactory.	to be satisfactory.

### Rules for the survey and construction of steel ships Part K Chapter 5 5.2.7-4

Correction	Present	Note
4 The tensile and the impact test specimens are to	1 1	Wording correction
comply with the requirements specified in Table Tables K2.1	comply with the requirements specified in Table K2.1 and	8
and <b>K2.5</b> respectively.	K2.5 respectively.	

## Rules for the survey and construction of steel ships Part K Chapter 8 8.2.2

Correction	Present	Note
The aluminium alloy pipes are classified as specified	The aluminium alloy pipes are classified as specified	Wording correction
in <del>Tables</del> Table K8.5.	in Tables K8.5.	worung correction

#### Rules for the survey and construction of steel ships Part M Chapter 8 8.6.2-2

Correction	Present	Note
<b>2</b> Testing Level and Acceptance Level of non- destructive testing to be applied are to be appropriate level	<b>2</b> Testing Level and Acceptance Level of non- destructive testing to be applied are to be appropriate level	Wording correction
which corresponds to Quality Level agreed by the Society in accordance with <b>Table Tables M8.2</b> to <b>M8.7</b> .	which corresponds to Quality Level agreed by the Society in accordance with Table M8.2 to M8.7.	

### Rules for the survey and construction of steel ships Part M Chapter 8 8.6.3-1

Correction	Present	Note
1 Testing Level specified in <b>Table Tables</b> M8.2 to M8.7	1 Testing Level specified in Table M8.2 to M8.7	Wording correction
stipulates testing coverage and the probability of detection	stipulates testing coverage and the probability of detection.	
Accuracy of test and the probability of detection increase from	Accuracy of test and the probability of detection increase from	
Testing Level A to Testing Level C.	Testing Level A to Testing Level C.	

### Rules for the survey and construction of steel ships Part M Chapter 8 8.6.4

Correction	Present	Note
Acceptance Level is to be in accordance with each	Acceptance Level is to be in accordance with each	Wording correction
standard specified in Table Tables M8.2 to M8.7, or as	standard specified in Table M8.2 to M8.7, or as deemed	there are a second s
deemed appropriate by the Society. The aforementioned	appropriate by the Society. The aforementioned standards, in	
standards, in principle, refer to the most recent version	principle, refer to the most recent version published.	
published.		

#### Rules for the survey and construction of steel ships Part M Chapter 8 8.6.9-1

Correction	Present	Note
1 The Acceptance Level, Testing Level and required Quality Levels for ultrasonic testing are to be in accordance	Quality Levels for ultrasonic testing are to be in accordance	Wording correction
with <u>Tables</u> M8.6 and M8.7.	with Table M8.6 and M8.7.	

### Rules for the survey and construction of steel ships Part M Chapter 9 9.4.1-2

Correction		Present	Note
2 The supplier is to be responsible for the preceding <u>-</u> 1.	2	The supplier is to be responsible for the preceding 1.	Wording correction

#### Rules for the survey and construction of steel ships Part M Chapter 9 9.4.2-3

Correction	Present	Note
3 In relation to the preceding <u>-</u> 2, suppliers are to employ,	3 In relation to the preceding 2, suppliers are to employ,	Wording correction
on a full-time basis, at least one supervisor for all ANDT	on a full-time basis, at least one supervisor for all ANDT	therating correction
methods which are carried out by the supplier, except in cases	methods which are carried out by the supplier, except in cases	
where it is recognised that it is difficult for the supplier to	where it is recognised that it is difficult for the supplier to	
directly employ a Level 3 certified supervisor for all the stated	directly employ a Level 3 certified supervisor for all the stated	
ANDT methods.	ANDT methods.	

#### Rules for the survey and construction of steel ships Part M Chapter 9 9.5.3-2

Correction	Present	Note
2 The data with respect to the repeatability and	2 The data with respect to the repeatability and	Wording correction
reliability obtained by the verification tests specified in the	reliability obtained by the verification tests specified in the	working correction
preceding $-1(3)$ is to be analyzed by comparing test reports for	preceding 1(3) is to be analyzed by comparing test reports for	
qualification blocks with those for onsite testing. Qualification	qualification blocks with those for onsite testing. Qualification	
blocks are to be manufactured in accordance with a recognized	blocks are to be manufactured in accordance with a recognized	
standard deemed appropriate by the Society. Onsite	standard deemed appropriate by the Society. Onsite	
verification test plans are to be confirmed by the Society.	verification test plans are to be confirmed by the Society.	

#### Rules for the survey and construction of steel ships Part M Chapter 9 9.8.2-8

Correction	Present	Note
8 All changes of essential or nonessential variables are	8 All changes of essential or nonessential variables are	Wording correction
to be written in the most recent approved <i>PAUT</i> specifications	to be written in the most recent approved PAUT specifications	working correction
specified in the preceding <u>-6</u> and <u>-7</u> .	specified in the preceding 6 and 7.	

#### Rules for the survey and construction of steel ships Part M Chapter 9 9.8.3-5

	Correction	Present	Note
<b>5</b> A	All changes of essential or nonessential variables are	5 All changes of essential or nonessential variables are	Wording correction
to be wri	itten in the most recent approved TOFD specifications	to be written in the most recent approved TOFD specifications	
specified	d in the preceding <u>-</u> 3 and <u>-</u> 4.	specified in the preceding 3 and 4.	

# Rules for the survey and construction of steel ships Part M Chapter 9 9.8.4-4

Correction	Present	Note
4 All content changes are to be written in the most recent	4 All content changes are to be written in the most recent	Wording correction
approved RT-D specifications specified in the preceding <u>-3</u> .	approved <i>RT-D</i> specifications specified in the preceding <b>3</b> .	Wording correction

#### Rules for the survey and construction of steel ships Part N Chapter 4 4.27.3

Correction	Present	Note
The procedure and relevant design parameters of the	The procedure and relevant design parameters of the	Wording correction
limit state design are to comply with the Standards for the Use	limit state design are to comply with the Standards for the Use	working correction
of limit state methodologies in the design of cargo	of limit state methodologies in the design of cargo	
containment systems of novel configuration (LSD Standard),	containment systems of novel configuration (LSD Standard),	
as set out in Annex 7 <u>of Guidance</u> .	as set out in Annex 7.	

# Rules for the survey and construction of steel ships Part N Chapter 6 6.2.1

Correction	Present	Note
This chapter gives the requirements for metallic and	This chapter gives the requirements for metallic and	Wording correction
non-metallic materials used in the construction of the cargo	non-metallic materials used in the construction of the cargo	
system. This includes requirements for joining processes,	system. This includes requirements for joining processes,	
production process, personnel qualification, NDT and	production process, personnel qualification, NDT and	
inspection and testing including production testing. The	inspection and testing including production testing. The	
requirements for rolled materials, forgings and castings are	requirements for rolled materials, forgings and castings are	
given in 6.4 and Table N6.1 to Table N6.5. The	given in 6.4 and Table N6.1 to Table N6.5. The	
requirements for weldments are given in 6.5, and the	requirements for weldments are given in 6.5, and the	
guidance for non-metallic materials is given in Annex 6 of	guidance for non-metallic materials is given in Annex 6. A	
Guidance. A quality assurance/quality control programme is	quality assurance/quality control programme is to be	
to be implemented to ensure that the requirements of 6.2 are	implemented to ensure that the requirements of 6.2 are	
complied with.	complied with.	

#### Rules for the survey and construction of steel ships Part N Chapter 6 Table N6.5

Correction									Present							Note	
Table N6.5 Plates and Sections for Hull Structures Requiredby 4.19.1-2 and 4.19.1-4								, ,	Table N6.5 Plates and Sections for Hull Structures Required by 4.19.1-2 and 4.19.1-4						quired	Reference correction	
Minimum design temperature of hull structure (°C)	Maximum thickness ( <i>mm</i> ) for steel grades								Minimum design temperature of hull structure (°C)		Maximum thickness (mm) for steel grades					es	
	A	В	D	Ε	AH	DH	EH			A	В	D	Ε	AH	DH	EH	
0 and above <sup>(1)</sup> -5 and above <sup>(2)</sup>			5			0 and above <sup>(1)</sup> -5 and above <sup>(2)</sup>	I	n accore	lance w	ith <b>Part</b>	C of th	ne Rules	s				
down to -5	15	25 30 50 25 45 50		50		down to -5	15	25	30	50	25	45	50	50			
down to -10	×	20	25	50	20	40	50		down to -10	×	20	25	50	20	40	50	
down to -20	×	×	20	50	×	30	50		down to -20	×	×	20	50	×	30	50	
down to -30	×	×	×	40	×	20	40		down to -30	×	×	×	40	×	20	40	
below -30 In accordance with <b>Table N6.2</b> except that the thickness limitation given in <b>Table N6.2</b> and in footnote (2) of that table does not apply.						thickness lir		In accordance with <b>Table N6.2</b> except that the thickness limitation given in <b>Table N6.2</b> and in footnote (2) of that table does not apply.									
Notes: "×" means steel grade not to be used. (1) For the purpose of <b>4.9<u>19</u>.1-3</b> (2) For the purpose of <b>4.9<u>19</u>.1-2</b>								eel grade purpose o purpose o	of <b>4.9.1</b> -	3							

# Rules for the survey and construction of steel ships Part N Chapter 6 6.7.1

Correction	Present	Note
The information in the attached Annex 6 of Guidance		Wording correction
is given for guidance in the selection and use of these	guidance in the selection and use of these materials, based on	worung correction
materials, based on the experience to date.	the experience to date.	

# Rules for the survey and construction of steel ships Part N Chapter 18 18.3.1-1

	Correction		Present	Note
1	General	1	General	Wording correction
(1)	A cargo emergency shutdown system is to be fitted to	(1)	A cargo emergency shutdown system is to be fitted to	working correction
	stop cargo flow in the event of an emergency, either		stop cargo flow in the event of an emergency, either	
	internally within the ship, or during cargo transfer to		internally within the ship, or during cargo transfer to	
	ship or shore. The design of the ESD system is to		ship or shore. The design of the ESD system is to	
	avoid the potential generation of surge pressures		avoid the potential generation of surge pressures	
	within cargo transfer pipe work (see -2(1)(d)).		within cargo transfer pipe work (see -2(1)(d)).	
(2)	Auxiliary systems for conditioning the cargo that use	(2)	Auxiliary systems for conditioning the cargo that use	
	toxic or flammable liquids or vapours are to be treated		toxic or flammable liquids or vapours are to be treated	
	as cargo systems for the purposes of ESD. Indirect		as cargo systems for the purposes of ESD. Indirect	
	refrigeration systems using an inert medium, such as		refrigeration systems using an inert medium, such as	
(2)	nitrogen, need not be included in the $ESD$ function.	( <b>2</b> )	nitrogen, need not be included in the <i>ESD</i> function.	
(3)	The <i>ESD</i> system is to be activated by the manual and	(3)	The <i>ESD</i> system is to be activated by the manual and	
	automatic initiations listed in <b>Table <u>18N18.1</u></b> . Any additional initiations are only to be included in the		automatic initiations listed in Table 18.1. Any additional initiations are only to be included in the	
	<i>ESD</i> system if it can be shown that their inclusion		<i>ESD</i> system if it can be shown that their inclusion	
	does not reduce the integrity and reliability of the		does not reduce the integrity and reliability of the	
	system overall.		system overall.	
(4)	Ship's <i>ESD</i> systems are to incorporate a ship-shore	(4)	Ship's <i>ESD</i> systems are to incorporate a ship-shore	
	link in accordance with recognized standards.	(1)	link in accordance with recognized standards.	
(5)	A functional flow chart of the <i>ESD</i> system and related	(5)	A functional flow chart of the <i>ESD</i> system and related	
	systems is to be provided in the cargo control station	(-)	systems is to be provided in the cargo control station	
	and on the navigation bridge.		and on the navigation bridge.	

# Rules for the survey and construction of steel ships Part N Chapter 18 18.3.1-3

	Correction		Present	Note
<b>3</b> <i>ESD</i> system controls			ESD system controls	Wording correction
(1)	As a minimum, the ESD system is to be capable of	(1)	As a minimum, the ESD system is to be capable of	working correction
	manual operation by a single control on the bridge and		manual operation by a single control on the bridge and	
	either in the control position required by 13.1.2 or the		either in the control position required by 13.1.2 or the	
	cargo control room, if installed, and no less than two		cargo control room, if installed, and no less than two	
	locations in the cargo area.		locations in the cargo area.	
(2)	The ESD system is to be automatically activated on	(2)	The ESD system is to be automatically activated on	
	detection of a fire on the weather decks of the cargo		detection of a fire on the weather decks of the cargo	
	area and/or cargo machinery spaces. As a minimum,		area and/or cargo machinery spaces. As a minimum,	
	the method of detection used on the weather decks is		the method of detection used on the weather decks is	
	to cover the liquid and vapour domes of the cargo		to cover the liquid and vapour domes of the cargo	
	tanks, the cargo manifolds and areas where liquid		tanks, the cargo manifolds and areas where liquid	
	piping is dismantled regularly. Detection may be by		piping is dismantled regularly. Detection may be by	
	means of fusible elements designed to melt at		means of fusible elements designed to melt at	
	temperatures between 98°C and 104°C, or by area fire		temperatures between 98°C and 104°C, or by area fire	
	detection methods.		detection methods.	
(3)	Cargo machinery that is running is to be stopped by	(3)	Cargo machinery that is running is to be stopped by	
	activation of the ESD system in accordance with the		activation of the ESD system in accordance with the	
	cause and effect matrix in Table 18 <u>N18</u> .1.		cause and effect matrix in Table 18.1.	
(4)	The ESD control system is to be configured so as to	(4)	The ESD control system is to be configured so as to	
	enable the high-level testing required in 13.3.5 to be		enable the high-level testing required in 13.3.5 to be	
	carried out in a safe and controlled manner. For the		carried out in a safe and controlled manner. For the	
	purpose of the testing, cargo pumps may be operated		purpose of the testing, cargo pumps may be operated	
	while the overflow control system is overridden.		while the overflow control system is overridden.	
	Procedures for level alarm testing and re-setting of the		Procedures for level alarm testing and re-setting of the	
	ESD system after completion of the high-level alarm		ESD system after completion of the high-level alarm	
	testing is to be included in the operation manual		testing is to be included in the operation manual	
	required by 18.2.1.		required by 18.2.1.	

#### Rules for the survey and construction of steel ships Part N ANNEX 16.1.1-2 Chapter 2 2.3.2-2

Correction	Present	Note
2 Unless designed with the strength to withstand the	2 Unless designed with the strength to withstand the	Reference correction
worst case overpressure due to ignited gas leaks, scavenge	worst case overpressure due to ignited gas leaks, scavenge	
spaces and exhaust system are to be fitted with suitable	spaces and exhaust system are to be fitted with suitable	
pressure relief systems in accordance with 16.7.1-4, Part <b>D</b> N	pressure relief systems in accordance with 16.7.1-4, Part D of	
of the Rules.	the Rules.	

### Rules for the survey and construction of steel ships Part N ANNEX 16.1.1-2 Chapter 4 4.2

Correction	Present	Note
High pressure gas-fuelled engines of ships to which the requirements in 1.1.1 of the Rules for Automatic and Remote Control Systems apply are to comply with the requirements in 3.2and 3.3 or 4.2 of the same Rules and 3.3 or 4.2 of the Rules for Automatic and Remote Control Systems, in addition to the following requirements (1) and (2):	High pressure gas-fuelled engines of ships to which the requirements in 1.1.1 of the Rules for Automatic and Remote Control Systems apply are to comply with the requirements in 3.2 and 3.3 or 4.2 of the same Rules, in addition to the following requirements (1) and (2):	Wording correction
<ul> <li>(2):</li> <li>(1) High pressure gas-fuelled engines are to be provided with safety system which automatically cut off gas fuel supply, and in addition, automatically transfer the mode of operation to oil fuel alone or stops the engines when abnormalities (a) to (d) given below occur. However, automatic cut off of gas fuel supply with the automatic double block and bleed valves specified in 16.4.5, Part N of the Rules may be accepted.</li> <li>(a) When abnormalities specified in 2.3.1-1 or -2 are detected.</li> <li>(b) When gas fuel leaks are detected by gas detecting devices specified in 3.2.3-2(2).</li> <li>(c) When high pressure gas compressors or pumps for supplying gas fuel stopped for reasons specified in 4.3 (excluding however, the case in which arrangement is made for automatic starting</li> </ul>	<ol> <li>High pressure gas-fuelled engines are to be provided with safety system which automatically cut off gas fuel supply, and in addition, automatically transfer the mode of operation to oil fuel alone or stops the engines when abnormalities (a) to (d) given below occur. However, automatic cut off of gas fuel supply with the automatic double block and bleed valves specified in 16.4.5, Part N of the Rules may be accepted.</li> <li>(a) When abnormalities specified in 2.3.1-1 or -2 are detected.</li> <li>(b) When gas fuel leaks are detected by gas detecting devices specified in 3.2.3-2(2).</li> <li>(c) When high pressure gas compressors or pumps for supplying gas fuel stopped for reasons</li> </ol>	

<ul> <li>of a stand-by compressor when the working compressor fails).</li> <li>(d) Other cases as deemed necessary by the Society.</li> <li>(2) High pressure gas-fuelled engines are to be provided with a system which automatically reduces speed or transfers the mode of operation to oil fuel alone and issues an alarm in the event of the following (a) through (g): <ul> <li>(a) Abnormal gas fuel temperature</li> <li>(b) Abnormal gas fuel supply pressure</li> <li>(c) Abnormalities in high pressure gas compressors for gas fuel supply specified in 4.3(2).</li> <li>(d) Activation of alarms specified in 4.3(2).</li> <li>(e) Low inert gas supply pressures for purging gas fuel pipe lines</li> <li>(f) Low pressures of hydraulic pneumatic sources loss of electric power supply for gas fuel combustion control</li> <li>(g) Others as deemed necessary by the Society.</li> </ul> </li> <li>(f) Low pressures for purging gas fuel supply pressures for purging gas fuel pipe lines</li> <li>(f) Low pressures of hydraulic pneumatic sources loss of electric power supply for gas fuel combustion control</li> <li>(g) Others as deemed necessary by the Society.</li> </ul>			
(g) Others as deemed necessary by the Society.	<ul> <li>compressor fails).</li> <li>(d) Other cases as deemed necessary by the Society.</li> <li>(2) High pressure gas-fuelled engines are to be provided with a system which automatically reduces speed or transfers the mode of operation to oil fuel alone and issues an alarm in the event of the following (a) through (g): <ul> <li>(a) Abnormal gas fuel temperature</li> <li>(b) Abnormal gas fuel supply pressure</li> <li>(c) Abnormalities in high pressure gas compressors for gas fuel supply specified in 4.3(2).</li> <li>(d) Activation of alarms specified in 3.2.3-2(1)(a) or (2).</li> <li>(e) Low inert gas supply pressures for purging gas fuel pipe lines</li> <li>(f) Low pressures of hydraulic pneumatic sources loss of electric power supply for gas fuel combustion control</li> </ul> </li> </ul>	<ul> <li>which arrangement is made for automatic starting of a stand-by compressor when the working compressor fails).</li> <li>(d) Other cases as deemed necessary by the Society.</li> <li>(2) High pressure gas-fuelled engines are to be provided with a system which automatically reduces speed or transfers the mode of operation to oil fuel alone and issues an alarm in the event of the following (a) through (g): <ul> <li>(a) Abnormal gas fuel temperature</li> <li>(b) Abnormal gas fuel supply pressure</li> <li>(c) Abnormalities in high pressure gas compressors for gas fuel supply specified in 4.3(2).</li> <li>(d) Activation of alarms specified in 3.2.3-2(1)(a) or (2).</li> <li>(e) Low inert gas supply pressures for purging gas fuel pipe lines</li> <li>(f) Low pressures of hydraulic pneumatic sources loss of electric power supply for gas fuel combustion control</li> </ul> </li> </ul>	
		(g) Others as deemed necessary by the Society.	

# Rules for the survey and construction of steel ships Part N ANNEX 16.1.1-3 Chapter 4 4.2

<ul> <li>Low pressure gas-fuelled engines of ships to which the requirement 1.1.1, of Rules for Automatic and Remote Control Systems apply are to comply with the requirements of 3.2 and 3.3 or 4.2 of Rules for Automatic and Remote Control Systems apply are to comply with the requirements of 3.2 and 3.3 or 4.2 of the same Rules, in addition to the following requirements (1) and (2).</li> <li>(1) Low pressure gas-fuelled engines are to be provided with safety systems which automatically cut off the gas fuel supply, and in addition, automatically transfer the mode of operation to oil fuel alone or stop the engines when abnormalities (a) to (c) given below occur. However, automatic double block and bleed valves specified in 16.4.5, Part N of the Rules may be accepted.</li> <li>(a) When operating on gas fuel, abnormalities are detected in the following: <ul> <li>(a) When operating on gas fuel, abnormalities are detected in the following:</li> <li>(b) When gas leaks to double wall pipes or void spaces of ducts specified in 3.2.2-2 are detected.</li> <li>(c) Others as deemed necessare by the Society.</li> <li>(b) When gas leaks to double wall pipes or void spaces of ducts specified in 3.2.2-2 are detected.</li> <li>(c) Others as deemed necessare by the Society.</li> </ul></li></ul>	Correction	Present	Note
<ul> <li>transfer the mode of operation to oil fuel alone or stop the engines when abnormalities (a) to (c) given below occur. However, automatic cut off of the gas fuel supply with the automatic double block and bleed valves specified in 16.4.5, Part N of the Rules may be accepted.</li> <li>(a) When operating on gas fuel, abnormalities are detected in the following: <ul> <li>(a) When operating on gas fuel, abnormalities are detected in the following:</li> <li>(b) When gas leaks to double wall pipes or void spaces of ducts specified in 3.2.2-2 are detected.</li> </ul> </li> <li>with safety systems which automatically cut off the gas fuel supply, and in addition, automatically transfer the mode of operation to oil fuel alone or stop the engines when abnormalities (a) to (c) given below occur. However, automatic cut off of the gas fuel supply with the automatic double block and bleed valves specified in 16.4.5, Part N of the Rules may be accepted.</li> <li>(a) When operating on gas fuel, abnormalities are detected in the following: <ul> <li>(a) When operating on gas fuel, abnormalities are detected in the following:</li> <li>(b) When gas leaks to double wall pipes or void spaces of ducts specified in 3.2.2-2 are detected.</li> </ul> </li> </ul>	<ul> <li>Low pressure gas-fuelled engines of ships to which the requirement 1.1.1, of Rules for Automatic and Remote Control Systems apply are to comply with the requirements of 3.2and 3.3 or 4.2 of the same Rules and 3.3 or 4.2 of Rules for Automatic and Remote Control Systems, in addition to the following requirements (1) and (2).</li> <li>(1) Low pressure gas-fuelled engines are to be provided with safety systems which automatically cut off the</li> </ul>	Low pressure gas-fuelled engines of ships to which the requirement 1.1.1, of Rules for Automatic and Remote Control Systems apply are to comply with the requirements of 3.2 and 3.3 or 4.2 of the same Rules, in addition to the following requirements (1) and (2).	
<ul> <li>(c) States as defined necessary by the society?</li> <li>(c) United gas reads to deduce with pipes of void spaces of ducts specified in 3.2.2-2 are detected.</li> <li>(c) Others as deemed necessary by the Society.</li> <li>(c) Others as deemed necessary by the Society.</li> <li>(d) United gas reads to deduce with pipes of void spaces of ducts specified in 3.2.2-2 are detected.</li> <li>(c) Others as deemed necessary by the Society.</li> <li>(d) United gas reads to deduct with pipes of void spaces of ducts specified in 3.2.2-2 are detected.</li> <li>(c) Others as deemed necessary by the Society.</li> <li>(d) United gas reads to deduct with pipes of void spaces of ducts specified in 3.2.2-2 are detected.</li> <li>(c) Others as deemed necessary by the Society.</li> <li>(d) United gas reads to deduct with pipes of void spaces of ducts specified in 3.2.2-2 are detected.</li> <li>(c) Others as deemed necessary by the Society.</li> <li>(d) United gas reads to deduct with pipes of void spaces of ducts specified in 3.2.2-2 are detected.</li> <li>(e) Others as deemed necessary by the Society.</li> <li>(f) United gas reads to deduct with pipes of void spaces of ducts specified in 3.2.2-2 are detected.</li> <li>(g) Others as deemed necessary by the Society.</li> <li>(g) Low pressure gas-fuelled engines are to be provided with a system which automatically reduces speed or</li> </ul>	<ul> <li>transfer the mode of operation to oil fuel alone or stop the engines when abnormalities (a) to (c) given below occur. However, automatic cut off of the gas fuel supply with the automatic double block and bleed valves specified in 16.4.5, Part N of the Rules may be accepted.</li> <li>(a) When operating on gas fuel, abnormalities are detected in the following: <ul> <li>i) gas fuel valve function</li> <li>ii) pilot oil fuel injection valve function</li> <li>iii) suction valve and exhaust valve function</li> <li>iv) exhaust gas temperatures at cylinder outlets v) pressure in cylinder</li> <li>vi) blow-by through suction valves or exhaust valves</li> </ul> </li> <li>(b) When gas leaks to double wall pipes or void spaces of ducts specified in 3.2.2-2 are detected.</li> <li>(c) Others as deemed necessary by the Society.</li> </ul> <li>(2) Low pressure gas-fuelled engines are to be provided with a system which automatically reduces speed or</li>	<ul> <li>with safety systems which automatically cut off the gas fuel supply, and in addition, automatically transfer the mode of operation to oil fuel alone or stop the engines when abnormalities (a) to (c) given below occur. However, automatic cut off of the gas fuel supply with the automatic double block and bleed valves specified in 16.4.5, Part N of the Rules may be accepted.</li> <li>(a) When operating on gas fuel, abnormalities are detected in the following: <ul> <li>i) gas fuel valve function</li> <li>ii) pilot oil fuel injection valve function</li> <li>iii) suction valve and exhaust valve function</li> <li>iv) exhaust gas temperatures at cylinder outlets v) pressure in cylinder</li> <li>vi) blow-by through suction valves or exhaust valves</li> </ul> </li> <li>(b) When gas leaks to double wall pipes or void spaces of ducts specified in 3.2.2-2 are detected.</li> <li>(c) Others as deemed necessary by the Society.</li> </ul>	

through (f):	transfers the mode of operation to oil fuel alone and
(a) Abnormal gas fuel temperature.	issues an alarm in the event of the following (a)
(b) Abnormal gas fuel supply pressure.	through (f):
(c) Activation of an alarm issued before the pressure	(a) Abnormal gas fuel temperature.
of the space between concentric pipes specified	(b) Abnormal gas fuel supply pressure.
in 3.2.2-2 drops to below the atmospheric	(c) Activation of an alarm issued before the pressure
pressure.	of the space between concentric pipes specified
(d) Low inert gas supply pressure for purging gas	in 3.2.2-2 drops to below the atmospheric
fuel pipe lines.	pressure.
(e) Low pressures of hydraulic and pneumatic	(d) Low inert gas supply pressure for purging gas
sources or loss of electric power supply for gas	fuel pipe lines.
fuel combustion control.	(e) Low pressures of hydraulic and pneumatic
(f) Others as deemed necessary by the Society.	sources or loss of electric power supply for gas
	fuel combustion control.
	(f) Others as deemed necessary by the Society.

# Rules for the survey and construction of steel ships Part I Chapter 8 8.5.9-2

Correction	Present	Note
2 Time domain calculation	2 Time domain calculation	Wording correction
Time domain calculations are to be calculated for the	Time domain calculations are to be calculated for the	wording correction
maximum continuous revolutions condition, maximum	maximum continuous revolutions condition, maximum	
continuous revolutions bollard conditions and for blade order	continuous revolutions bollard conditions and for blade order	
resonant rotational speeds so that the resonant vibration	resonant rotational speeds so that the resonant vibration	
responses can be obtained. The load sequence given in the	responses can be obtained. The load sequence given in the	
following, for a case where a propeller is milling an ice block,	following, for a case where a propeller is milling an ice block,	
are to be used for the strength evaluation of the propulsion	are to be used for the strength evaluation of the propulsion	
line. (The given load sequence is not intended for propulsion	line. (The given load sequence is not intended for propulsion	
system stalling analyses.)	system stalling analyses.)	
(1) Diesel engine plants without an elastic coupling are to	(1) Diesel engine plants without an elastic coupling are to	
be calculated at the least favourable phase angle for	be calculated at the least favourable phase angle for	
ice versus engine excitation, when calculated in the	ice versus engine excitation, when calculated in the	
time domain.	time domain.	
(2) The engine firing pulses are to be included in the	(2) The engine firing pulses are to be included in the	
calculations and their standard steady state harmonics	calculations and their standard steady state harmonics	
can be used.	can be used.	
(3) If there is a blade order resonance just above the	(3) If there is a blade order resonance just above the	
maximum continuous revolutions speed, calculations	maximum continuous revolutions speed, calculations	
are to cover rotational speeds up to 105% of the	are to cover rotational speeds up to 105% of the	
maximum continuous revolutions speed.	maximum continuous revolutions speed.	
(4) The propeller ice excitation torque for shaft line	(4) The propeller ice excitation torque for shaft line	
transient dynamic analysis in the time domain is to	transient dynamic analysis in the time domain is to	
comply with the following requirements:	comply with the following requirements:	
(a) The excitation torque is defined as a sequence of	(a) The excitation torque is defined as a sequence of	
blade impacts which are of half sine shape and	blade impacts which are of half sine shape and	
occur at the blade. The excitation frequency is to	occur at the blade. The excitation frequency is to	
follow the propeller rotational speed during the	follow the propeller rotational speed during the	
ice interaction sequence. The total ice torque is to	ice interaction sequence. The total ice torque is to	
be obtained by summing the torques of single ice	be obtained by summing the torques of single ice	
blade ice impacts taking into account the phase	blade ice impacts taking into account the phase	
shift. The single ice blade impact is given by the	shift. The single ice blade impact is given by the	

following formulae:	following formulae:	
i) when $0 \le \varphi - 360x \le \alpha_i (deg)$	i) when $0 \le \varphi - 360x \le \alpha_i$ (deg)	
$Q(\varphi) = C_q Q_{max} \sin(\varphi(180/\alpha_i))$	$Q(\varphi) = C_q Q_{max} \sin(\varphi(180/\alpha_i))$	
ii) when $\alpha_i \leq \varphi - 360x \leq 360$ (deg)	ii) when $\alpha_i \leq \varphi - 360x \leq 360 (deg)$	
$Q(\varphi) = 0$	$Q(\varphi) = 0$	
where	where	
$\varphi$ : Rotation angle from when the first	$\varphi$ : Rotation angle from when the first	
impact occurs	impact occurs	
x: Integer revolutions from the time of	x: Integer revolutions from the time of	
first impact	first impact	
$Q_{max}$ : Maximum torque on the propeller	$Q_{max}$ : Maximum torque on the propeller	
as specified in 8.5.8. Q max may be	as specified in 8.5.8. $Q_{max}$ may be	
taken as a constant value in the	taken as a constant value in the	
complete speed range. When	complete speed range. When	
considerations at specific shaft	considerations at specific shaft	
speeds are performed, a relevant	speeds are performed, a relevant	
$Q_{max}$ may be calculated using the	$Q_{max}$ may be calculated using the	
relevant speed according to 8.5.8	relevant speed according to 8.5.8	
and <b>8.5.9</b> .	and <b>8.5.9</b> .	
$C_q$ : As specified in Table 18.20	$C_q$ : As specified in <b>Table 18.20</b>	
$a_i$ : Duration of propeller blade/ice	$a_i$ : Duration of propeller blade/ice	
interaction expressed in rotation	interaction expressed in rotation	
angle as specified in Table 18.20	angle as specified in Table 18.20	
(See Fig. 18.7)	(See Fig. 18.7)	
(b) The number of propeller revolutions and the	(b) The number of propeller revolutions and the	
number of impacts during the milling sequence	number of impacts during the milling sequence	
are to be given by the following formulae. For	are to be given by the following formulae. For	
bow propellers, the number of propeller	bow propellers, the number of propeller	
revolutions and the number of impacts during the	revolutions and the number of impacts during the	
milling sequence are subject to special	milling sequence are subject to special	
consideration.	consideration.	
i) The number of propeller revolutions:	i) The number of propeller revolutions:	
$N_Q = 2H_{ice}$	$N_Q = 2H_{ice}$	
ii) The number of impacts:	ii) The number of impacts:	

$ZN_Q$	$ZN_Q$	
Where	Where	
$H_{ice}$ : As specified in Table	$H_{ice}$ : As specified in Table	
I8.15	<b>I8.15</b>	
Z : Number of propeller	Z : Number of propeller	
blades	blades	
An illustration of all excitation cases for	An illustration of all excitation cases for	
different numbers of blades is given in	different numbers of blades is given in	
Fig. 18.8 and <u>Fig.</u> 18.9.	Fig. 18.8 and 18.9.	
(c) A dynamic simulation is to be performed for all	(c) A dynamic simulation is to be performed for all	
excitation cases at the operational rotational	excitation cases at the operational rotational	
speed range. For a fixed pitch propeller	speed range. For a fixed pitch propeller	
propulsion plant, a dynamic simulation is also to	propulsion plant, a dynamic simulation is also to	
cover the bollard pull condition with a	cover the bollard pull condition with a	
corresponding rotational speed assuming the	corresponding rotational speed assuming the	
maximum possible output of the engine.	maximum possible output of the engine.	
(d) For the consideration of loads, the maximum	(d) For the consideration of loads, the maximum	
occurring torque during the speed drop process is	occurring torque during the speed drop process is	
to be used.	to be used.	
(e) For the time domain calculation, the simulated	(e) For the time domain calculation, the simulated	
response torque typically includes the engine	response torque typically includes the engine	
mean torque and the propeller mean torque. If this	mean torque and the propeller mean torque. If this	
is not the case, the response torques are to be	is not the case, the response torques are to be	
obtained using the following formula:	obtained using the following formula:	
$Q_{peak} = Q_{emax} + Q_{rtd}$	$Q_{peak} = Q_{emax} + Q_{rtd}$	
Where	Where	
$Q_{rtd}$ : Maximum simulated torque	$Q_{rtd}$ : Maximum simulated torque	
obtained from the time domain analysis	obtained from the time domain analysis	

	Corre	ection				•	•	Pres	sent					Note
	Table I8.20 Values of $C_q$ and $a_i$				Table I8.20 Values of $C_q$ and $a_i$						Wording correction			
Torque	Propeller-ice	$C_q$		<i>ai</i> ( <b>c</b>	leg)		Torque	Propeller-ice	$C_q$		<i>a</i> <sub>i</sub> (	deg)		working correction
excitation	interaction	Cq	Z=3	Z=4	Z=5	Z=6	excitation	interaction	Cq	Z=3	Z=4	Z=5	Z=6	
Case 1	Single ice block	0.75	90	90	72	60	Case 1	Single ice block	0.75	90	90	72	60	
Case 2	Single ice block	1.0	135	135	135	135	Case 2	Single ice block	1.0	135	135	135	135	
Case 3	Two ice blocks (phase shift 360/(2 • Z) deg.)	0.5	45	45	36	30	Case 3	Two ice blocks (phase shift 360/(2 • Z) deg.)	0.5	45	45	36	30	
Case 4	Single ice block	0.5	45	45	36	30	Case 4	Single ice block	0.5	45	45	36	30	
	Note: Total ice torque summing the to blades, while takin phase shift 360deg and Fig. 18.9). At end of the milling the calculated of ramp functions a increase $C_q$ to its within one propell vice versa to decrea the examples of numbers in Fig. 18	orque ng acco g./Z (Se the beg sequen duration re to b maxin der revo case it to of dif	of sir punt of e Fig. I inning ace (with n), lir be used num va olution o zero ( fferent	f the (18.8) and thin hear 1 to alue and (see Z				Note: Total ice torque summing the to blades, while takin phase shift 360deg and <b>I8.9</b> ). At the b of the milling sequ calculated duration functions are to be $C_q$ to its maximum propeller revolution to decrease it to examples of differ Fig. <b>I8.8</b> and <b>I8.9</b> )	orque ng acco g./Z (Se beginnin uence ( on), lin e used f value on and o zero cent Z r	of sir punt of e Fig. I ng and within hear ra to incre within vice vo (see	ngle the (8.8 end the ump case one ersa the			

# Rules for the survey and construction of steel ships Part I Chapter 8 8.5.9-4

Correction	Present	Note
4 For time domain calculation specified in -2 and	4 For time domain calculation specified in -2 and	Reference correction
frequency domain calculation specified in -3, further the	frequency domain calculation specified in -3, further the	
requirements given in the following (1) to (3 and (2) are also	requirements given in the following (1) to (3) are also to be	
to be complied with.	complied with.	
(1) The aim of time domain torsional vibration	(1) The aim of time domain torsional vibration	
simulations is to estimate the extreme torsional load	simulations is to estimate the extreme torsional load	
for the ship's lifespan. The simulation model can be	for the ship's lifespan. The simulation model can be	
taken from the normal lumped mass elastic torsional		
vibration model, including damping. For a time		
domain analysis, the model should include the ice	•	
excitation at the propeller, other relevant excitations		
and the mean torques provided by the prime mover		
and hydrodynamic mean torque in the propeller. The		
calculations should cover variation of phase between	-	
the ice excitation and prime mover excitation. This is	-	
extremely relevant to propulsion lines with directly		
driven combustion engines. Time domain calculations		
are to be calculated for the maximum continuous		
revolutions condition, maximum continuous		
revolutions bollard conditions and for resonant speed,	1	
so that the resonant vibration responses can be	-	
obtained.	obtained.	
(2) For frequency domain calculations, the load should be		
estimated as a Fourier component analysis of the	1 ,	
continuous sequence of half sine load sequences. First		
and second order blade components should be used	-	
for excitation.	for excitation.	

# Rules for the survey and construction of steel ships Part I Annex 1 Chapter 1 1.1.1-1

Correction	Present	Note
constructions, equipment and machineries of polar class ships	<b>1</b> This Annex are to be applied to materials, constructions, equipment and machineries of polar class ships in accordance with <b>1.1.1-4</b> , <b>3.3</b> , <b>Part I of the Rules</b> and <b>I7.3.3</b> ,	-
I7.3.3, Part I of the Guidance.	Part I of the Guidance.	

#### Rules for the survey and construction of steel ships Part P Chapter 2 2.2.1-3

Correction	Present	Note
<b>3</b> Application of steels for structural members for hull	3 Application of steels for structural members for hull	Reference correction
are given in Fig. P6.1 to Fig. P6.64, where the design service	are given in Fig. P6.1 to Fig. P6.6, where the design service	
temperature of materials is lower than $-50$ °C and plate	temperature of materials is lower than -50 °C and plate	
thickness is exceeding to 70mm, however, applied steels are	thickness is exceeding to 70mm, however, applied steels are	
satisfactory of the Society.	satisfactory of the Society.	

#### Rules for the survey and construction of steel ships Part P Chapter 5 5.2.1-3

Correction	Present	Note
3 With respect to the provisions of -1 above, 14.7.1, and	1 1 / /	Reference correction
14.12.4.3, Part 1, Part C and 21.6.8, Part CS need not be	14.12.4.3, Part 1, Part C and 21.6.8, Part CS need not be	
applied to non self-propelled self-elevating units.	applied to non self-propelled self-elevating units.	

#### Rules for the survey and construction of steel ships Part P Chapter 10 10.7.4-6

Correction	Present	Note
6 The thruster system for Class 1 DPS need not comply	6 The thruster system for Class 1 DPS need not comply	Reference correction
with the requirements specified in <u>-</u> 2 after failure of one of the	with the requirements specified in 2 after failure of one of the	
constituent power systems or the thrusters connected to that	constituent power systems or the thrusters connected to that	
system.	system.	

# Rules for the survey and construction of steel ships Part P Chapter 11 11.1.2-2

Correction	Present	Note
2 For machinery installations used solely for the	2 For machinery installations used solely for the	Reference correction
operation which is the purpose of the unit, relevant	operation which is the purpose of the unit, relevant	
requirements in Part D listed in the following (1) to (25) as	requirements in Part D listed in the following (1) to (25) as	
well as the requirements in 11.1.3 and 11.1.4 are to be applied.	well as the requirements in 11.1.3 and 11.1.4 are to be applied.	
(1) <b>1.1.2, Part D</b> General - General - Equivalency	(1) <b>1.1.2, Part D</b> General - General - Equivalency	
(2) 1.1.3, Part D General - General - Machinery	(2) 1.1.3, Part D General - General - Machinery	
Installations with Novel Design Features	Installations with Novel Design Features	
(3) 1.1.4, Part D General - General - Modification of	(3) 1.1.4, Part D General - General - Modification of	
Requirements	Requirements	
(4) <b>1.1.6, Part D</b> General - General - Terminology	(4) <b>1.1.6, Part D</b> General - General - Terminology	
(5) <b>1.2, Part D</b> General - Materials	(5) <b>1.2, Part D</b> General - Materials	
(6) 1.3.4, Part D General - General Requirements for	(6) 1.3.4, Part D General - General Requirements for	
Machinery Installations - Fire Protections	Machinery Installations - Fire Protections	
(7) 1.3.5, Part D General - General Requirements for	(7) 1.3.5, Part D General - General Requirements for	
Machinery Installations - Ventilating Systems for	Machinery Installations - Ventilating Systems for	
Machinery Spaces	Machinery Spaces	
(8) 1.3.6, Part D General - General Requirements for	(8) 1.3.6, Part D General - General Requirements for	
Machinery Installations - Protection against Noise	Machinery Installations - Protection against Noise	
(9) 2.2.2-4, Part D Reciprocating Internal Combustion	(9) 2.2.2-4, Part D Reciprocating Internal Combustion	
Engines - Materials, Construction and Strength -	Engines - Materials, Construction and Strength -	
Construction, Installation and General	Construction, Installation and General	
(10) 2.2.2-5, Part D Reciprocating Internal Combustion	(10) 2.2.2-5, Part D Reciprocating Internal Combustion	
Engines - Materials, Construction and Strength -	Engines - Materials, Construction and Strength -	
Construction, Installation and General	Construction, Installation and General	
(11) 2.2.2-6, Part D Reciprocating Internal Combustion	(11) <b>2.2.2-6</b> Reciprocating Internal Combustion Engines -	
Engines - Materials, Construction and Strength -	Materials, Construction and Strength - Construction,	
Construction, Installation and General	Installation and General	
(12) 2.4, Part D Reciprocating Internal Combustion	(12) 2.4, Part D Reciprocating Internal Combustion	
Engines - Safety Devices	Engines - Safety Devices	
(13) 2.5.4, Part D Reciprocating Internal Combustion	(13) 2.5.4, Part D Reciprocating Internal Combustion	
Engines - Associated Installations - Fuel Oil	Engines - Associated Installations - Fuel Oil	
Arrangements	Arrangements	

•	(14)	<b>3.3, Part D</b> Steam Turbines - Safety Devices	
4.3, Part D Gas Turbines - Safety Devices	(15)	4.3, Part D Gas Turbines - Safety Devices	
5.2.5, Part D Power Transmission Systems -	(16)	5.2.5, Part D Power Transmission Systems -	
Materials and Construction - Lubricating Oil		Materials and Construction - Lubricating Oil	
arrangements		arrangements	
Chapter 9, Part D Boilers, etc. and Incinerators	(17)	Chapter 9, Part D Boilers, etc. and Incinerators	
Chapter 10, Part D Pressure Vessels	(18)	Chapter 10, Part D Pressure Vessels	
Chapter 11, Part D Welding for Machinery	(19)	Chapter 11, Part D Welding for Machinery	
Installations		Installations	
13.9.1, Part D Piping Systems - Fuel Oil Systems -	(20)	13.9.1, Part D Piping Systems - Fuel Oil Systems -	
General		General	
13.9.2, Part D Piping Systems - Fuel Oil Systems -	(21)	13.9.2, Part D Piping Systems - Fuel Oil Systems -	
		Fuel Oil Filling Pipes	
•	(22)	13.9.4, Part D Piping Systems - Fuel Oil Systems -	
	(23)		
Fuel Oil Heaters		Fuel Oil Heaters	
	(24)		
	(25)		
	<ul> <li>Materials and Construction - Lubricating Oil arrangements</li> <li>Chapter 9, Part D Boilers, etc. and Incinerators</li> <li>Chapter 10, Part D Pressure Vessels</li> <li>Chapter 11, Part D Welding for Machinery Installations</li> <li>13.9.1, Part D Piping Systems - Fuel Oil Systems - General</li> <li>13.9.2, Part D Piping Systems - Fuel Oil Systems - Fuel Oil Filling Pipes</li> <li>13.9.4, Part D Piping Systems - Fuel Oil Systems - Drip Trays and Drainage System</li> <li>13.9.5, Part D Piping Systems - Fuel Oil Systems -</li> </ul>	<ul> <li>4.3, Part D Gas Turbines - Safety Devices <ol> <li>5.2.5, Part D Power Transmission Systems - Materials and Construction - Lubricating Oil arrangements</li> <li>Chapter 9, Part D Boilers, etc. and Incinerators</li> <li>Chapter 10, Part D Pressure Vessels</li> <li>Chapter 11, Part D Welding for Machinery Installations</li> <li>13.9.1, Part D Piping Systems - Fuel Oil Systems - General</li> <li>13.9.2, Part D Piping Systems - Fuel Oil Systems - Fuel Oil Filling Pipes</li> <li>13.9.4, Part D Piping Systems - Fuel Oil Systems - Fuel O</li></ol></li></ul>	<ul> <li>4.3, Part D Gas Turbines - Safety Devices</li> <li>5.2.5, Part D Power Transmission Systems - Materials and Construction - Lubricating Oil arrangements</li> <li>Chapter 9, Part D Boilers, etc. and Incinerators</li> <li>Chapter 10, Part D Pressure Vessels</li> <li>Chapter 11, Part D Welding for Machinery Installations</li> <li>13.9.1, Part D Piping Systems - Fuel Oil Systems - General</li> <li>13.9.2, Part D Piping Systems - Fuel Oil Systems - Fuel Oil Filling Pipes</li> <li>13.9.4, Part D Piping Systems - Fuel Oil Systems - Fuel Oil Heaters</li> <li>13.10.1, Part D Piping Systems - Lubricating Oil Systems and Hydraulic Oil Systems - General</li> <li>(15) 4.3, Part D Gas Turbines - Safety Devices</li> <li>(16) 5.2.5, Part D Power Transmission Systems - Materials and Construction - Lubricating Oil arrangements</li> <li>(17) Chapter 9, Part D Boilers, etc. and Incinerators</li> <li>(18) Chapter 10, Part D Pressure Vessels</li> <li>(19) Chapter 11, Part D Welding for Machinery Installations</li> <li>(20) 13.9.1, Part D Piping Systems - Fuel Oil Systems - Fuel Oil Filling Pipes</li> <li>(21) 13.9.2, Part D Piping Systems - Fuel Oil Systems - Fuel Oil Heaters</li> <li>(23) 13.9.5, Part D Piping Systems - Fuel Oil Systems - Fuel Oil Heaters</li> <li>(24) 13.10.1, Part D Piping Systems - Lubricating Oil Systems and Hydraulic Oil Systems - General</li> </ul>

# Rules for the survey and construction of steel ships Part P Chapter 11 11.1.6-9

Correction	Present	Note
9 Bilge pipes passing through deep tanks are to be led	9 Bilge pipes passing through deep tanks are to be led	Reference correction
through an oiltight or watertight pipe tunnel or, alternatively,	through an oiltight or watertight pipe tunnel or, alternatively,	
are to be of sufficient thicknesses complying with the	are to be of sufficient thicknesses complying with the	
requirements in Table D12.6(1) to Table D12.6(2)), Part D	requirements in Table D12.6(1) to Table D12.6(2) and all	
of the Rules and all joints of them are to be welded.	joints of them are to be welded.	

#### Rules for the survey and construction of steel ships Part P Chapter 11 11.1.6-10

Correction	Present	Note
<b>10</b> Bilge pipes passing through double bottom tanks are		Reference correction
	to be led through oiltight or watertight pipe tunnel or,	
alternatively, are to be of sufficient thicknesses complying	alternatively, are to be of sufficient thicknesses complying	
with the requirements in Table D12.6(1) to Table	with the requirements in Table D12.6(1) to Table D12.6(2).	
D12.6(2)- <u>), Part D of the Rules.</u>		

#### Rules for the survey and construction of steel ships Part P Chapter 11 11.1.8-3

Correction	Present	Note
<b>3</b> Ballast pipes passing through deep tanks other than		Reference correction
ballast tanks are to be led through an oiltight or watertight pipe	ballast tanks are to be led through an oiltight or watertight pipe	
tunnel or, alternatively, are to be of sufficient thickness	tunnel or, alternatively, are to be of sufficient thickness	
complying with the requirements in Table D12.6(1) to Table	complying with the requirements in Table D12.6(1) to Table	
D12.6(2)), Part D of the Rules and all joints of them are to be	D12.6(2) and all joints of them are to be welded.	
welded.		

# Rules for the survey and construction of steel ships Part P Chapter 11 11.1.15-1

	Correction		Present	Note
1	Machinery installations of the unit which has the		Machinery installations of the unit which has the	Reference correction
	propulsion machinery are to comply with the		propulsion machinery are to comply with the	
-	ements in this 11.1.15 as well as the requirements in	1	ements in this 11.1.15 as well as the requirements in	
	to 11.1.14 and the relevant requirements in Part D		to 11.1.14 and the relevant requirements in Part D	
	in the following (1) to (8).		n the following (1) to (8). $1 - 2 - 2 - 3 - 2 - 2 - 2 - 2 - 2 - 2 - 2$	
(1)	<b>1.3.2, Part D</b> General - General Requirements for	(1)	<b>1.3.2, Part D</b> General - General Requirements for	
	Machinery Installations - Astern Power		Machinery Installations - Astern Power	
(2)	1.3.7, Part D General - General Requirements for	(2)	1.3.7, Part D General - General Requirements for	
	Machinery Installations - Communication between		Machinery Installations - Communication between	
	navigation bridge and control stations for main		navigation bridge and control stations for main	
	propulsion machinery		propulsion machinery	
(3)	1.3.8, Part D General - General Requirements for	(3)	1.3.8, Part D General - General Requirements for	
	Machinery Installations - Engineers' Alarm		Machinery Installations - Engineers' Alarm	
(4)	Chapter 7, Part D Propellers	(4)	Chapter 7, Part D Propellers	
(5)	13.9, Part D Piping Systems - Fuel Oil Systems	(5)	13.9, Part D Piping Systems - Fuel Oil Systems	
	(except 13.9.1, 13.9.2, 13.9.4 and 13.9.5))		(except 13.9.1, 13.9.2, 13.9.4 and 13.9.5)	
(6)	13.10, Part D Piping Systems - Lubricating Oil	(6)	13.10, Part D Piping Systems - Lubricating Oil	
	Systems and Hydraulic Oil Systems (except 13.10.1))		Systems and Hydraulic Oil Systems (except 13.10.1)	
(7)	13.12, Part D Piping Systems - Cooling Systems			
(8)	Chapter 15, Part D Steering Gears	(7)	13.12, Part D Piping Systems - Cooling Systems	
		(8)	Chapter 15, Part D Steering Gears	

# Rules for the survey and construction of steel ships Part P Chapter 17 17.5.5-1

Correction	Present	Note
1 Except as provided in the following -2, a helideck	1 Except as provided in the following -2, a helideck	Reference correction
obstacle-free sector marking is to be located on the TLOF	obstacle-free sector marking is to be located on the TLOF	
perimeter marking and indicated by the use of a black	perimeter marking and indicated by the use of a black	
chevron. The helideck obstacle-free sector marking is to	chevron. The helideck obstacle-free sector marking is to	
comply with the following requirements (1) to (4).	comply with the following requirements $(1)$ to $(4)$ .	
(1) Each leg of the chevron is to be $0.8 m \log and 0.1 m$	(1) Each leg of the chevron is to be $0.8 m \log and 0.1 m$	
wide and is to form the angle in the manner shown in	wide and is to form the angle in the manner shown in	
Fig. <del>17<u>P17</u>.4</del> .	Fig. 17.4.	
(2) The obstacle-free sector marking is to indicate the	(2) The obstacle-free sector marking is to indicate the	
origin of the obstacle-free sector.	origin of the obstacle-free sector.	
(3) The obstacle-free sector marking is to indicate the	(3) The obstacle-free sector marking is to indicate the	
directions of the limits of the sector.	directions of the limits of the sector.	
(4) The obstacle-free sector marking is to indicate the	(4) The obstacle-free sector marking is to indicate the	
verified D-value of the helideck.	verified D-value of the helideck.	

#### Rules for the survey and construction of steel ships Part P Chapter 18 18.3.2

	Correction		Present	Note
	If not included in the official log or tour record, the		If not included in the official log or tour record, the	Reference correction
follow	ng additional information or records are to be	followi	ng additional information or records are to be	
mainta	ined for a period acceptable to the Administration:	maintai	ined for a period acceptable to the Administration:	
(1)	Survey records for Periodical Surveys	(1)	Survey records for Periodical Surveys	
(2)	Inspection and maintenance records related to means	(2)	Inspection and maintenance records related to means	
	of access specified in 9.6.5		of access specified in 9.6.5	
(3)	Light ship data alterations log specified in 12.5.2-	(3)	Light ship data alterations log specified in 12.5.2-	
	5(3)(b)ii), Part B		5(3)(b)ii), Part B	
(4)	Testing records and equipment changes for anchors	(4)	Testing records and equipment changes for anchors	
	and related equipment specified in 10.3.3		and related equipment specified in 10.3.3	
(5)	Maintenance, inspection and testing records related to	(5)	Maintenance, inspection and testing records related to	
	fire-fighting systems specified in 15.2.16-4		fire-fighting systems specified in 15.2.16-4	
(6)	Maintenance records related to life-saving equipment	(6)	Maintenance records related to life-saving equipment	
	specified in 1.1.1-8, PartChapter 1 of the Rules for		specified in 1.1.1-8, Part 1 of the Rules for Safety	
	Safety Equipment		Equipment	
(7)	Inspections of cranes specified in Rules for Cargo	(7)	Inspections of cranes specified in Rules for Cargo	
	Handling Appliances		Handling Appliances	
(8)	Rated capacities of lifting and hoisting equipment	(8)	Rated capacities of lifting and hoisting equipment	
	specified in 9.4.1-2		specified in 9.4.1-2	
(9)	Muster lists specified in 18.2.11-3	(9)	Muster lists specified in 18.2.11-3	
	The electrical equipment register specified in 13.4	(10)		
(11)	Maintenance and repair of all electrical equipment in	(11)	Maintenance and repair of all electrical equipment in	
	hazardous areas for continued certification in		hazardous areas for continued certification in	
	accordance with the international standards referred		accordance with the international standards referred	
	to in paragraph 13.4		to in paragraph 13.4	

# Rules for the survey and construction of steel ships Part PS Chapter 6 6.3.3-1

Correction	Present	Note
1 The fire integrity of bulkheads and decks which	1 The fire integrity of bulkheads and decks which	Reference correction
separate adjacent spaces is to be in accordance with the	separate adjacent spaces is to be in accordance with the	
requirements given Table PS6.1 and Table PS6.2 instead of	requirements given Table PS6.1 and Table PS6.2 instead of	
9.2.4, Part R.	9.2.4, Part R.	
In application of the standards of fire integrity, the	In application of the standards of fire integrity, the	
respective spaces are classified into the following categories	respective spaces are classified into the following categories	
(1) to (13) in accordance with their risk of fire. The title of	(1) to (13) in accordance with their risk of fire. The title of	
each category is intended to be typical rather than restrictive.	each category is intended to be typical rather than restrictive.	
(1) Control stations	(1) Control stations	
(a) Spaces containing emergency sources of power	(a) Spaces containing emergency sources of power	
and lighting	and lighting	
(b) Wheelhouses and chart rooms	(b) Wheelhouses and chart rooms	
(c) Radio rooms	(c) Radio rooms	
(d) Spaces containing fire indicating equipment, fire	(d) Spaces containing fire indicating equipment, fire	
alarm equipment and fire control equipment	alarm equipment and fire control equipment	
(e) Control stations for propulsion machinery	(e) Control stations for propulsion machinery	
provided outside machinery spaces	provided outside machinery spaces	
(f) Central production control stations	(f) Central production control stations	
(2) Corridors and lobbies	(2) Corridors and lobbies	
(3) Accommodation spaces (excluding corridors and	(3) Accommodation spaces (excluding corridors and	
lobbies)	lobbies)	
(4) Stairways	(4) Stairways	
Interior stairways, lifts and escalators (excluding	Interior stairways, lifts and escalators (excluding	
those wholly contained within machinery spaces) and	those wholly contained within machinery spaces) and	
enclosures thereto (5) Samias ana an with law risk of fire	enclosures thereto	
(5) Service spaces with low risk of fire	(5) Service spaces with low risk of fire	
Locker rooms and store rooms not used for the storage of flammable liquids and having areas loss than $4 m^2$	Locker rooms and store rooms not used for the storage	
of flammable liquids and having areas less than $4 m^2$ , drying rooms and laundries	of flammable liquids and having areas less than 4 $m^2$ , drying rooms and laundries	
<ul><li>(6) Machinery spaces of Category A</li></ul>	<ul><li>(6) Machinery spaces of Category A</li></ul>	
Spaces as defined in 3.2.31, Part R	Spaces as defined in <b>3.2.31, Part R</b>	
<ul><li>(7) Other machinery spaces</li></ul>	(7) Other machinery spaces	
(7) Other machinery spaces	(7) Other machinery spaces	

	Machinery spaces excluding machinery spaces of		Machinery spaces excluding machinery spaces of	
	Category A		Category A	
(8)	Crude oil areas	(8)	Crude oil areas	
	Spaces as defined in 1.2.7 <del>, Part R</del>		Spaces as defined in 1.2.7, Part R	
(9)	Production areas	(9)	Production areas	
	Spaces containing production systems, spaces for		Spaces containing production systems, spaces for	
	extracting crude oil and manifolds		extracting crude oil and manifolds	
(10)	Hazardous areas	(10)	Hazardous areas	
	Areas defined in 5.2.1		Areas defined in 5.2.1	
(11)	Service spaces with high risk of fire	(11)	Service spaces with high risk of fire	
	Galleys, pantries containing appliances, paint rooms,		Galleys, pantries containing appliances, paint rooms,	
	lamp rooms, and locker rooms and store rooms having		lamp rooms, and locker rooms and store rooms having	
	areas of $4m^2$ or more, spaces for the storage of		areas of $4m^2$ or more, spaces for the storage of	
	flammable liquids, and workshops which are not		flammable liquids, and workshops which are not	
	included in machinery spaces		included in machinery spaces	
(12)	Spaces on open decks	(12)	Spaces on open decks	
	Spaces on open decks, enclosed promenades without		Spaces on open decks, enclosed promenades without	
	risk of fire and spaces outside superstructures and		risk of fire and spaces outside superstructures and	
	deckhouses		deckhouses	
(13)	Sanitary spaces	(13)	Sanitary spaces	
	Spaces containing sanitary and similar		Spaces containing sanitary and similar	
	accommodations		accommodations	

# Rules for the survey and construction of steel ships Part PS Chapter 7 7.1.12-6

Correction	Present	Note
6 It is to be possible to supply each ballast pump	6 It is to be possible to supply each ballast pump	
required by -3 above from emergency sources of electrical	required by -3 above from emergency sources of electrical	
power. Arrangements are to be such that systems are capable	power. Arrangements are to be such that systems are capable	
of restoring Floating Offshore Facilities from the inclinations	of restoring Floating Offshore Facilities from the inclinations	Reference correction
specified in 7.1. <u>4-</u> 2-4 to a level trim and safe draught condition	specified in 7.1.2-4 to a level trim and safe draught condition	
after the loss of any single component in power supply	after the loss of any single component in power supply	
systems.	systems.	

# Rules for Marine Pollution Prevention Systems Part 1 Chapter 1 1.1.1-1

Correction	Present	Note
1 The Rules for Marine Pollution Prevention Systems	1 The Rules for Marine Pollution Prevention Systems	
(hereinafter referred to as "the Rules") apply to the survey,	(hereinafter referred to as "the Rules") apply to the survey,	
construction and equipment for the prevention of pollution	construction and equipment for the prevention of pollution	
from ships classed with NIPPON KAIJI KYOKAI	from ships classed with NIPPON KAIJI KYOKAI	
(hereinafter referred to as "the Society") and intended to be		
registered as the Marine Pollution Prevention Installations	registered as the Marine Pollution Prevention Installations	
under Chapter 3 of the Regulations for the Classification	under Chapter 3 of the Regulations for the Classification	
and Registry of Ships.	and Registry of Ships.	
The "Marine Pollution Prevention Installations" means the	The "Marine Pollution Prevention Installations" means the	
construction and equipment specified in <b>PartParts</b> 3, 4, 7 and	construction and equipment specified in Part 3, 4, 7 and 8 and	Wording correction
8 and include the emergency plans specified in <b>PartParts</b> 5	include the emergency plans specified in Part 5 and 6.	
and 6.		

# Rules for Marine Pollution Prevention Systems Part 1 Chapter 1 1.1.4-3

Correction	Present	Note
<b>3</b> With regard to the permission/prohibition of operation	<b>3</b> With regard to the permission/prohibition of operation	
of diesel engines in the NOx emission control areas referred	of diesel engines in the NOx emission control areas referred	
to in 1.1.2(15), PatPart 8 of the Rules, excluding those case	to in 1.1.2(15), Pat 8 of the Rules, excluding those case where	Wording correction
where exemption from compliance with the standards	exemption from compliance with the standards specified in	
specified in Regulation 13.5.1 of Annex VI is granted, the	Regulation 13.5.1 of Annex VI is granted, the following (1)	
following (1) and (2) are to be entered into the Classification	and (2) are to be entered into the Classification Register as	
Register as descriptive notes for the ship.	descriptive notes for the ship.	
(1) In the case where diesel engine installations are	(1) In the case where diesel engine installations are	
provided on ships at beginning stage of construction	provided on ships at beginning stage of construction	
on or after 1 January 2016 (excluding those which fall	on or after 1 January 2016 (excluding those which fall	
under the following (2)) in accordance with the	under the following (2)) in accordance with the	
requirements of Annex VI, a note thereof (e.g., NOx-	requirements of Annex VI, a note thereof (e.g., NOx-	
III(2016)) is to be added.	III(2016)) is to be added.	
(2) In the case where diesel engine installations are	(2) In the case where diesel engine installations are	
provided on ships at beginning stage of construction	provided on ships at beginning stage of construction	
on or after 1 January 2021 in accordance with the	on or after 1 January 2021 in accordance with the	
requirements of Annex VI, a note thereof (e.g., NOx-	requirements of Annex VI, a note thereof (e.g., NOx-	
III(2021)) is to be added.	III(2021)) is to be added.	

# Rules for Marine Pollution Prevention Systems Part 1 Chapter 1 1.1.4-4

Present	Note
4 Based on 2.1.3-2 of the Rules for the Classification	
and Registry of Ships, "Sulphur Oxides" (abbreviated as	
	Wording correction
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	4 Based on 2.1.3-2 of the Rules for the Classification and Registry of Ships, "Sulphur Oxides" (abbreviated as "SOx") is to be affixed to the classification characters of ships provided with the following (1) and/or (2) that comply with the requirements related to sulphur content specified in -1 or -

#### Rules for Marine Pollution Prevention Systems Part 2 Chapter 1 1.1.2-2

Correction		Present	Note
2 Periodical Surveys consist of the following surveys:	2	Periodical Surveys consist of the following surveys:	
(1) The construction, equipment and plans specified in	(1)	The construction, equipment and plans specified in	
PartParts 3 to 6 and 8:		Part 3 to 6 and 8:	Wording correction
(a) Annual Survey		(a) Annual Survey	
(b) Intermediate Survey		(b) Intermediate Survey	
(c) Special Survey		(c) Special Survey	
(2) The equipment specified in Part 7:	(2)	The equipment specified in Part 7:	
Special Survey		Special Survey	

#### Rules for Marine Pollution Prevention Systems Part 2 Chapter 1 1.1.3-6

Correction	Present	Note
6 Unscheduled Surveys	6 Unscheduled Surveys	
The classed ships may be subject to Unscheduled Surveys	The classed ships may be subject to Unscheduled Surveys	
when the confirmation of the status of the ship by survey is	when the confirmation of the status of the ship by survey is	
deemed necessary in cases where the Society considers the	deemed necessary in cases where the Society considers the	
ship to be subject to 1.4-3 of the CONDITIONS OF	ship to be subject to 1.4-3 of the CONDITIONS OF	Wording correction
SERVICE FOR CLASSIFICATION OF SHIPS AND	SERVICE FOR CLASSIFICATION OF SHIPS AND	
<b>REGISTRATION OF INSTALLATIONS.</b> Conditions of	<b>REGISTRATION OF INSTALLATIONS.</b> At Unscheduled	
Service for Classification of Ships and Registration of	Surveys, investigations, examinations or tests are to be made	
Installations. At Unscheduled Surveys, investigations,	to the satisfaction of the Surveyor with respect to the matters	
examinations or tests are to be made to the satisfaction of the	concerned.	
Surveyor with respect to the matters concerned.		

#### Rules for Marine Pollution Prevention Systems Part 2 Chapter 1 1.1.6-4

Correction	Present	Note
4 At Special Surveys, where examinations have been	4 At Special Surveys, where examinations have been	
carried out during the period between the 4th Annual Survey	carried out during the period between the 4th Annual Survey	
and the Special Survey specified in 1.1.3-4 according to the	and the Special Survey specified in 1.1.3-4 according to the	
requirements for Special Surveys, said examinations to be	requirements for Special Surveys, said examinations to be	
carried out as Special Surveys may be omitted at the discretion	carried out as Special Surveys may be omitted at the discretion	
of the Surveyor. However, in case where Annual Surveys or	of the Surveyor. However, in case where Annual Surveys or	
Intermediate Surveys are carried out in advance in accordance	Intermediate Surveys are carried out in advance in accordance	
with 1.1.4-2, the Special Survey is to be carried out in	with 1.1.4-2, the Special Survey is to be carried out in	Reference correction
accordance with the provisions specified otherwise by the	accordance with the provisions specified otherwise by the	
Society.	Society.	

### Rules for Marine Pollution Prevention Systems Part 2 Chapter 2 2.1.3-3

Correction	Present	Note
3 Inspections on the following items are to be carried out	3 Inspections on the following items are to be carried out	
for the equipment for the prevention of discharge by noxious	for the equipment for the prevention of discharge by noxious	
liquid substances from ships carrying noxious liquid	liquid substances from ships carrying noxious liquid	
substances in bulk:	substances in bulk:	
(1) Prewashing system	(1) Prewashing system	
(a) It is to be ensured that the system is provided in	(a) It is to be ensured that the system is provided in	
accordance with the approved drawings and the	accordance with the approved drawings and the	
procedures and arrangements manual, and is in good working order.	procedures and arrangements manual, and is in good working order.	
(b) Where wash water heating system is provided, it	(b) Where wash water heating system is provided, it	
is to be ensured that the system is installed in	is to be ensured that the system is installed in	
accordance with the approved drawings, and is in	accordance with the approved drawings, and is in	
good working order.	good working order.	
(c) Where portable washing machines are used, it is	(c) Where portable washing machines are used, it is	
to be ensured that the number and location of	to be ensured that the number and location of	
opening for tank washing are provided in	opening for tank washing are provided in	
accordance with the approved drawings.	accordance with the approved drawings.	
(2) Stripping system	(2) Stripping system	
(a) It is to be ensured that the stripping system is	(a) It is to be ensured that the stripping system is	

	provided in accordance with the approved drawings, and is in good working order.		provided in accordance with the approved drawings, and is in good working order.	
	(b) It is to be ensured that the amount of residues		(b) It is to be ensured that the amount of residues	
	produced by stripping, which is determined by		produced by stripping, which is determined by	
	the water test through the approved procedure		the water test through the approved procedure	
	and the approved calculation method is within		and the approved calculation method is within	
	the values given in Table 4-7 <u>3</u> specified in 4.3.2 in Part 4.		the values given in Table 4-7 specified in 4.3.2 in Part 4.	Reference correction
	(c) Where removable pipes and bent pipes are		(c) Where removable pipes and bent pipes are	
	provided, it is to be ensured that they are stowed		provided, it is to be ensured that they are stowed	
$\langle \mathbf{a} \rangle$	on board the ship.	$\langle \mathbf{a} \rangle$	on board the ship.	
(3)	Discharge outlets below the waterline	(3)	Discharge outlets below the waterline	
	(a) It is to be ensured that underwater discharge		(a) It is to be ensured that underwater discharge	
	outlets are provided in accordance with the		outlets are provided in accordance with the	
	approved drawings.		approved drawings.	
	(b) It is to be ensured that means are provided to		(b) It is to be ensured that means are provided to	
	separate the underwater discharge outlets from		separate the underwater discharge outlets from	
	those above the water line.		those above the water line.	
(4)	Arrangements for discharge to reception facilities	(4)	Arrangements for discharge to reception facilities	
	It is to be ensured that the arrangements for discharge		It is to be ensured that the arrangements for discharge	
	to reception facilities are provided in accordance with		to reception facilities are provided in accordance with	
	the approved drawings, and are in good working		the approved drawings, and are in good working	
	order.		order.	
(5)	Ventilated washing system	(5)	Ventilated washing system	
	(a) It is to be ensured that the ventilated washing		(a) It is to be ensured that the ventilated washing	
	system is provided in accordance with the		system is provided in accordance with the	
	approved drawings, and is in good working order.		approved drawings, and is in good working order.	
	(b) Where portable washing machines are used, it is		(b) Where portable washing machines are used, it is	
	to be ensured that the necessary blower fan		to be ensured that the necessary blower fan	
	capacity is obtainable.		capacity is obtainable.	
	1	L	1	

#### Rules for Marine Pollution Prevention Systems Part 3 Chapter 1 1.2.3-5

Correction	Present	Note
<b>5</b> For ships, other than self-elevating drilling units, oil	5 For ships, other than self-elevating drilling units, oil	
fuel tanks are to be located above the moulded line of the	fuel tanks are to be located above the moulded line of the	
bottom shell plating nowhere less than the distance h as	bottom shell plating nowhere less than the distance $h$ as	
specified below. In the turn of the bilge area and at locations	specified below. In the turn of the bilge area and at locations	
without a clearly defined turn of the bilge, the oil fuel tank	without a clearly defined turn of the bilge, the oil fuel tank	
boundary line is to run parallel to the line of the midship flat	boundary line is to run parallel to the line of the midship flat	
bottom as shown in FigureFig. 3-1.	bottom as shown in Figure 3-1.	Wording correction
h = B/20 (m) or,	h = B/20 ( <i>m</i> ) or,	
h = 2.0 ( <i>m</i> ), whichever is the lesser.	h = 2.0 ( <i>m</i> ), whichever is the lesser.	
The minimum value of $h = 0.76 (m)$	The minimum value of $h = 0.76 (m)$	

# Rules for Marine Pollution Prevention Systems Part 3 Chapter 1 1.2.3-6

Correction	Present	Note
6 For ships having an aggregate oil fuel capacity of		
$600m^3$ or more but less than $5,000m^3$ , oil fuel tanks are to be	$600m^3$ or more but less than $5{,}000m^3$ , oil fuel tanks are to be	
located inboard of the moulded line of the side shell plating,	located inboard of the moulded line of the side shell plating,	
nowhere less than the distance w which, as shown in	nowhere less than the distance w which, as shown in Figure	
FigureFig. 3-2, is measured at any cross-section at right	3-2, is measured at any cross-section at right angles to the side	Wording correction
angles to the side shell, as specified below:	shell, as specified below:	_
w = 0.4 + 2.4 C/20,000 (m)	w = 0.4 + 2.4 C/20,000 (m)	
The minimum value of $w = 1.0$ ( <i>m</i> ), however for	The minimum value of $w = 1.0$ ( <i>m</i> ), however for	
individual tanks with an oil fuel capacity of less than $500m^3$	individual tanks with an oil fuel capacity of less than $500m^3$	
the minimum value is 0.76m.	the minimum value is 0.76m.	

# Rules for Marine Pollution Prevention Systems Part 3 Chapter 1 1.2.3-7

Correction	Present	Note
7 For ships having an aggregate oil fuel capacity of	7 For ships having an aggregate oil fuel capacity of	
5,000 $m^3$ and over, oil fuel tanks are to be located inboard of	$5,000m^3$ and over, oil fuel tanks are to be located inboard of	
the moulded line of the side shell plating, nowhere less than	the moulded line of the side shell plating, nowhere less than	
the distance w which, as shown in FigureFig. 3-2, is	the distance w which, as shown in Figure 3-2, is measured at	Wording correction
measured at any cross-section at right angles to the side shell,	any cross-section at right angles to the side shell, as specified	
as specified below:	below:	
w = 0.5 + C/20,000 (m) or	w = 0.5 + C/20,000 (m) or	
w = 2.0 ( <i>m</i> ), whichever is the lesser.	w = 2.0 ( <i>m</i> ), whichever is the lesser.	
The minimum value of $w = 1.0$ ( <i>m</i> )	The minimum value of $w = 1.0$ ( <i>m</i> )	

# Rules for Marine Pollution Prevention Systems Part 3 Chapter 1 1.2.3-10

<ul> <li>10 Notwithstanding the provisions of -5 to -7, oil fuel tanks may be located so as to border on the ship's outer shell, provided that ships are to comply with the accidental oil fuel outflow performance standard specified below:</li> <li>(1) The level of protection against oil fuel pollution in the event of collision or grounding is to be assessed on the basis of the mean oil outflow parameter (<i>O<sub>M</sub></i>) as follows:</li> <li>(1) The level of protection against oil fuel pollution in the event of collision or grounding is to be assessed on the basis of the mean oil outflow parameter (<i>O<sub>M</sub></i>) as follows:</li> <li>(2) The following general assumptions are to apply when calculating the mean oil outflow parameter specified in (1) and (2) above.</li> <li>(3) The ship is to be assumed loaded to the partial load line draught <i>dr</i> without trim or heel.</li> <li>(4) For the purposes of these outflow calculations, the permeability of each oil fuel (μ<sub>n</sub>), is generally to be taken as 1,000kg/m<sup>3</sup>. If the density of the oil fuel is specially restricted to a lesser value, the lesser value may be applied.</li> <li>(3) The following assumptions are to be used when combining the oil outflow parameters.</li> <li>(a) The mean oil outflow parameters.</li> <li>(b) All oil fuel tanks is to be calculated</li> </ul>	Correction	Present	Note
<ul> <li>provided that ships are to comply with the accidental oil fuel outflow performance standard specified below:</li> <li>(1) The level of protection against oil fuel pollution in the event of collision or grounding is to be assessed on the basis of the mean oil outflow parameter (<i>O<sub>M</sub></i>) as follows:</li> <li><i>O<sub>M</sub></i> ≤ 0.0157 - 1.14 × 10<sup>-6</sup> · <i>C</i> for 600 ≤ <i>C</i> &lt; 5,000 (<i>m</i><sup>2</sup>)</li> <li><i>O<sub>M</sub></i> ≤ 0.010 for <i>C</i> ≥ 0,000 (<i></i></li></ul>	10 Notwithstanding the provisions of -5 to -7, oil fuel	10 Notwithstanding the provisions of -5 to -7, oil fuel	
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<ul> <li>generally to be taken as 1,000kg/m<sup>3</sup>. If the density of the oil fuel is specially restricted to a lesser value, the lesser value may be applied.</li> <li>(d) For the purposes of these outflow calculations, the permeability of each oil fuel tank is to be taken as 0.99, unless proven otherwise.</li> <li>(3) The following assumptions are to be used when combining the oil outflow parameters.</li> <li>(a) The mean oil outflow is to be calculated</li> <li>(b) the density of the density of the oil fuel tank is to be taken as 1,000kg/m<sup>3</sup>. If the density of the oil fuel is specially restricted to a lesser value, the lesser value may be applied.</li> <li>(c) For the purposes of these outflow calculations, the permeability of each oil fuel tank is to be taken as 0.99, unless proven otherwise.</li> <li>(3) The following assumptions are to be used when combining the oil outflow parameters.</li> <li>(a) The mean oil outflow is to be calculated</li> </ul>		1 0	
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<ul> <li>value, the lesser value may be applied.</li> <li>(d) For the purposes of these outflow calculations, the permeability of each oil fuel tank is to be taken as 0.99, unless proven otherwise.</li> <li>(3) The following assumptions are to be used when combining the oil outflow parameters.</li> <li>(a) The mean oil outflow is to be calculated</li> <li>value, the lesser value may be applied.</li> <li>(d) For the purposes of these outflow calculations, the permeability of each oil fuel tank is to be taken as 0.99, unless proven otherwise.</li> <li>(3) The following assumptions are to be used when combining the oil outflow parameters.</li> <li>(a) The mean oil outflow is to be calculated</li> <li>(b) Value, the lesser value may be applied.</li> <li>(c) For the purposes of these outflow calculations, the permeability of each oil fuel tank is to be taken as 0.99, unless proven otherwise.</li> <li>(3) The following assumptions are to be used when combining the oil outflow parameters.</li> <li>(a) The mean oil outflow is to be calculated</li> </ul>			
<ul> <li>(d) For the purposes of these outflow calculations, the permeability of each oil fuel tank is to be taken as 0.99, unless proven otherwise.</li> <li>(3) The following assumptions are to be used when combining the oil outflow parameters.</li> <li>(a) The mean oil outflow is to be calculated</li> <li>(b) For the purposes of these outflow calculations, the permeability of each oil fuel tank is to be taken as 0.99, unless proven otherwise.</li> <li>(c) For the purposes of these outflow calculations, the permeability of each oil fuel tank is to be taken as 0.99, unless proven otherwise.</li> <li>(c) For the purposes of these outflow calculations, the permeability of each oil fuel tank is to be taken as 0.99, unless proven otherwise.</li> <li>(d) For the purposes of these outflow calculations, the permeability of each oil fuel tank is to be taken as 0.99, unless proven otherwise.</li> <li>(d) For the purposes of these outflow calculations, the permeability of each oil fuel tank is to be taken as 0.99, unless proven otherwise.</li> <li>(a) The mean oil outflow is to be calculated</li> </ul>			
<ul> <li>the permeability of each oil fuel tank is to be taken as 0.99, unless proven otherwise.</li> <li>(3) The following assumptions are to be used when combining the oil outflow parameters.</li> <li>(a) The mean oil outflow is to be calculated</li> <li>(b) the permeability of each oil fuel tank is to be taken as 0.99, unless proven otherwise.</li> <li>(c) The following assumptions are to be used when combining the oil outflow parameters.</li> <li>(a) The mean oil outflow is to be calculated</li> <li>(b) the permeability of each oil fuel tank is to be taken as 0.99, unless proven otherwise.</li> <li>(c) The following assumptions are to be used when combining the oil outflow parameters.</li> <li>(a) The mean oil outflow is to be calculated</li> </ul>	• • • •	• • • • • • • • • • • • • • • • • • • •	
<ul> <li>taken as 0.99, unless proven otherwise.</li> <li>(3) The following assumptions are to be used when combining the oil outflow parameters.</li> <li>(a) The mean oil outflow is to be calculated</li> <li>(b) taken as 0.99, unless proven otherwise.</li> <li>(c) taken as 0.99, unless proven as 0.99, unless proven as 0.99, unless proven as 0.99,</li></ul>			
<ul> <li>(3) The following assumptions are to be used when combining the oil outflow parameters.</li> <li>(a) The mean oil outflow is to be calculated</li> <li>(b) The mean oil outflow is to be calculated</li> <li>(c) The mean oil outflow is to be calculated</li> <li>(c) The mean oil outflow is to be calculated</li> </ul>	1 0	1 0	
combining the oil outflow parameters.combining the oil outflow parameters.(a) The mean oil outflow is to be calculated(a) The mean oil outflow is to be calculated	· 1		
(a) The mean oil outflow is to be calculated (a) The mean oil outflow is to be calculated			
		•	
independently for side damage and bottom independently for side damage and bottom			

damage and then combin		damage and then combined into the non-	
dimensional oil outflow	parameter $O_M$ , as	dimensional oil outflow parameter $O_M$ , as	
follows:		follows:	
$O_M = (0.4 \cdot O_{MS} + 0.6 \cdot O_M)$	-	$O_M = (0.4 \cdot O_{MS} + 0.6 \cdot O_{MB})/C$	
$O_{MS}$ : Mean outflow for s	ide damage $(m^3)$	$O_{MS}$ : Mean outflow for side damage $(m^3)$	
$O_{MB}$ : Mean outflow for b	bottom damage $(m^3)$	$O_{MB}$ : Mean outflow for bottom damage ( $m^3$ )	
(b) For bottom damage, indeper	ndent calculations for	(b) For bottom damage, independent calculations for	
mean outflow are to be for	0m and minus $2.5m$	mean outflow are to be for $0m$ and minus $2.5m$	
tide conditions, and then con	mbined as follows:	tide conditions, and then combined as follows:	
$O_{MB} = 0.7 \cdot O_{MB(0)} + 0.3 \cdot .$	$O_{MB(2.5)}$	$O_{MB} = 0.7 \cdot O_{MB(0)} + 0.3 \cdot O_{MB(2.5)}$	
$O_{MB(0)}$ : Mean outflow :	for 0 <i>m</i> tide condition	$O_{MB(0)}$ : Mean outflow for $0m$ tide condition	
$(m^3)$		$(m^3)$	
$O_{MB(2.5)}$ : Mean outflow	for minus 2.5 <i>m</i> tide	$O_{MB(2.5)}$ : Mean outflow for minus 2.5 <i>m</i> tide	
condition $(m^3)$		condition $(m^3)$	
(4) The mean outflow for side da	mage $O_{MS}$ is to be (4)	e	
calculated as follows:		calculated as follows:	
$O_{MS} = \sum_{i}^{n} P_{S(i)} \cdot O_{S(i)}  (m^3)$		$O_{MS} = \sum_{i}^{n} P_{S(i)} \cdot O_{S(i)}  (m^3)$	
i : Represents each oil	fuel tank under	i : Represents each oil fuel tank under	
consideration	1. 1	consideration	
n : Total number of oil fuel		n : Total number of oil fuel tanks	
$P_{S(i)}$ : The probability of pene	e	$P_{S(i)}$ : The probability of penetrating oil fuel tank <i>i</i>	
from side damage, calc	culated in accordance	from side damage, calculated in accordance	
with (6) $O_{S(i)}$ : The outflow, in $m^3$ , from	m side damage to oil	with (6) $O_{S(i)}$ : The outflow, in $m^3$ , from side damage to oil	
fuel tank <i>i</i> , which is a	-	$O_{S(i)}$ . The outflow, in <i>m</i> , from side damage to on fuel tank <i>i</i> , which is assumed equal to the	
total volume in oil fuel	÷	total volume in oil fuel tank <i>i</i> at 98% filling	
(5) The mean outflow for bottom	e	6	
calculated for each tidal condition	-	calculated for each tidal condition as follows:	
22		~	
(a) $O_{MB(0)} = \sum_{i}^{n} P_{B(i)} \cdot O_{B(i)} \cdot$	$C_{DB(i)}$ $(m^3)$	(a) $O_{MB(0)} = \sum_{i}^{n} P_{B(i)} \cdot O_{B(i)} \cdot C_{DB(i)}$ (m <sup>3</sup> )	
<i>i</i> : Represents each	oil fuel tank under	<i>i</i> : Represents each oil fuel tank under	
consideration		consideration	

<i>n</i> : Total number of oil fuel tanks	
$P_{B(i)}$ : The probability of penetrating oil fuel	
tank <i>i</i> from bottom damage, calculated	
in accordance with (7)	
$O_{B(i)}$ : The outflow, in $m^3$ , from side damage	
to oil fuel tank <i>i</i> , calculated in	
accordance with (c) and (d)	
$C_{DB(i)}$ : Factor to account for oil capture as	
defined in (e)	
$\sum^{n}$	
(b) $O_{MB(2.5)} = \sum_{i}^{n} P_{B(i)} \cdot O_{B(i)} \cdot C_{DB(i)}$ (m <sup>3</sup> )	
$i, n, P_{B(i)}$ and $C_{DB(i)}$ : As defined in (a)	
$O_{B(i)}$ : The outflow from oil fuel tank <i>i</i> , in $m^3$ ,	
after tidal change	
(c) The oil outflow $O_{B(i)}$ for each oil fuel tank is to be	
calculated based on pressure balance principles,	
in accordance with the following assumptions:	
i) The ship is to be assumed stranded with zero	
trim and heel, with the stranded draught prior	
to tidal change equal to the partial load line	
draught $d_P$ .	
ii) The oil fuel level after damage is to be	
calculated as follows:	
$h_F = \{(d_P + t_C - Z_l)(\rho_S)\}/\rho_n$	
$h_F$ : The height of the oil fuel surface	
above $Z_l(m)$	
$t_C$ : The tidal change, in <i>m</i> . Reductions	
in tide are to be expressed as	
negative values.	
$Z_l$ : The height of the lowest point in the	
oil fuel tank above baseline ( <i>m</i> )	
$\rho_S$ : Density of seawater, to be taken as	
1,025 $kg/m^3$	
$ \rho_n$ : Nominal density of the oil fuel, as	

<i>n</i> : Total number of oil fuel tanks	
$P_{B(i)}$ : The probability of penetrating oil	fuel
tank <i>i</i> from bottom damage, calcula	
in accordance with (7)	
$O_{B(i)}$ : The outflow, in $m^3$ , from side dam	age
to oil fuel tank <i>i</i> , calculated	
accordance with (c) and (d)	
$C_{DB(i)}$ : Factor to account for oil capture	as as
defined in (e)	o us
(b) $O_{MB(2.5)} = \sum_{i}^{n} P_{B(i)} \cdot O_{B(i)} \cdot C_{DB(i)}$ (m <sup>3</sup> )	
$i, n, P_{B(i)}$ and $C_{DB(i)}$ : As defined in	
$O_{B(i)}$ : The outflow from oil fuel tank <i>i</i> , in	$m^3$ ,
after tidal change	
(c) The oil outflow $O_{B(i)}$ for each oil fuel tank is to	o be
calculated based on pressure balance princip	oles,
in accordance with the following assumptions	s:
i) The ship is to be assumed stranded with z	zero
trim and heel, with the stranded draught p	orior
to tidal change equal to the partial load	line
draught $d_P$ .	
ii) The oil fuel level after damage is to	be
calculated as follows:	
$h_F = \{(d_P + t_C - Z_l)(\rho_S)\}/\rho_n$	
$h_F$ : The height of the oil fuel surf	face
above $Z_l(m)$	
$t_C$ : The tidal change, in <i>m</i> . Reducti	ions
in tide are to be expressed	
negative values.	
$Z_l$ : The height of the lowest point in	the
oil fuel tank above baseline ( <i>m</i> )	
$\rho_{S}$ : Density of seawater, to be taken	n as
$1,025 \ kg/m^3$	
$\rho_n$ : Nominal density of the oil fuel	, as

defined in (2)(c)	defined in (2)(c)	
(d) The oil outflow $O_{B(i)}$ for any tanks bounding the	(d) The oil outflow $O_{B(i)}$ for any tanks bounding the	
bottom shell is to be taken not less than the	bottom shell is to be taken not less than the	
following formula, but no more than the tank	following formula, but no more than the tank	
capacity:	capacity:	
$O_{B(i)} = H_W \cdot A$	$O_{B(i)} = H_W \cdot A$	
$H_W$ is to be taken as follows:	<i>Hw</i> is to be taken as follows:	
i) $H_W = 1.0 (m)$ , when $Y_B = 0$	i) $H_W = 1.0 (m)$ , when $Y_B = 0$	
ii) $H_W = B_B/50$ but not greater than 0.4m, when	ii) $H_W = B_B/50$ but not greater than 0.4 <i>m</i> , when	
$Y_B$ is greater than $B_B/5$ or 11.5m, whichever	$Y_B$ is greater than $B_B/5$ or 11.5m, whichever	
is less. For $Y_B$ values outboard $B_B/5$ or $11.5m$ ,	is less. For $Y_B$ values outboard $B_B/5$ or 11.5m,	
whichever is less, $H_W$ is to be linearly	whichever is less, $H_W$ is to be linearly	
interpolated. (See FigureFig. 3-3)	interpolated. (See Figure 3-3)	
iii) " $H_W$ " is to be measured upwards from the	iii) " $H_W$ " is to be measured upwards from the	Wording correction
midship flat bottom line. In the turn of the	midship flat bottom line. In the turn of the	
bilge area and at locations without a clearly	bilge area and at locations without a clearly	
defined turn of the bilge, $HW$ is to be	defined turn of the bilge, $H_W$ is to be	
measured from a line parallel to the midship	measured from a line parallel to the midship	
flat bottom, as shown for distance "h" in	flat bottom, as shown for distance "h" in	
FigureFig. 3-1.	Figure 3-1.	
$Y_B$ : The minimum value of $Y_B$ over the length	$Y_B$ : The minimum value of $Y_B$ over the length	Wording correction
of the oil fuel tank, where at any given	of the oil fuel tank, where at any given	
location, $Y_B$ is the transverse distance	location, $Y_B$ is the transverse distance	
between the side shell at waterline dB and	between the side shell at waterline d <sub>B</sub> and	
the tank at or below waterline $d_B$ .	the tank at or below waterline $d_B$ .	
A: The maximum horizontal projected area	A: The maximum horizontal projected area	
of the oil fuel tank up to the level of $H_W$ from the bottom of the tank.	of the oil fuel tank up to the level of $H_W$ from the bottom of the tank.	
(e) In the case of bottom damage, a portion from the outflow from an oil fuel tank may be contured by	(e) In the case of bottom damage, a portion from the outflow from an oil fuel tank may be contured by	
outflow from an oil fuel tank may be captured by non-oil compartments. This effect is	outflow from an oil fuel tank may be captured by non-oil compartments. This effect is	
approximated by application of the factor $C_{DB(i)}$	approximated by application of the factor $C_{DB(i)}$	
for each tank, which is to be taken as follows:	for each tank, which is to be taken as follows:	
$C_{DB(i)} = 0.6$ for oil fuel tanks bounded from	$C_{DB(i)} = 0.6$ for oil fuel tanks bounded from	
$C_{DB(l)} = 0.0$ for on fuel tanks bounded from	$C_{DB(l)} = 0.0$ for on fuer tanks bounded from	

below by non-oil compartments;	below by non-oil compartments;	
$C_{DB(i)} = 1.0$ for otherwise.	$C_{DB(i)} = 1.0$ for otherwise.	
(6) The probability $P_S$ of breaching a compartment from	(6) The probability $P_S$ of breaching a compartment from	
side damage is to be calculated as follows:	side damage is to be calculated as follows:	
$P_S = P_{SL} \cdot P_{SV} \cdot P_{ST}$	$P_S = P_{SL} \cdot P_{SV} \cdot P_{ST}$	
$P_{SL} = 1 - P_{Sf} - P_{Sa}$ : Probability the	$P_{SL} = 1 - P_{Sf} - P_{Sa}$ : Probability the	
damage will extend into the	damage will extend into the	
longitudinal zone bounded by $X_a$	longitudinal zone bounded by $X_a$	
and X <sub>f</sub>	and X <sub>f</sub>	
$P_{SV} = 1 - P_{Su} - P_{Sl}$ : Probability the	$P_{SV} = 1 - P_{Su} - P_{Sl}$ : Probability the	
damage will extend into the	damage will extend into the	
vertical zone bounded by $Z_l$ and $Z_u$	vertical zone bounded by $Z_l$ and $Z_u$	
$P_{ST} = 1 - P_{Sy}$ : Probability the damage will	$P_{ST} = 1 - P_{Sy}$ : Probability the damage will	
extend transversely beyond the	extend transversely beyond the	
boundary defined by y	boundary defined by $y$	
$P_{Sa}, P_{Sf}, P_{Sl} \text{ and } P_{Su}$ : Probabilities	$P_{Sa}, P_{Sf}, P_{Sl}$ and $P_{Su}$ : Probabilities	
defined as the follows, are to be	defined as the follows, are to be	
determined by linear	determined by linear	
interpolation from the table of	interpolation from the table of	
probabilities for side damage provided in <b>Table 3-1</b> .	probabilities for side damage provided in <b>Table 3-1</b> .	
$P_{Sa}$ : The probability the damage will lie	$P_{Sa}$ : The probability the damage will lie	
entirely aft of location $X_a/L_f$	entirely aft of location $X_a/L_f$	
$P_{Sf}$ : The probability the damage will lie	$P_{Sf}$ : The probability the damage will lie	
entirely forward of location $X_f/L_f$	entirely forward of location $X_f/L_f$	
$P_{Sl}$ : The probability the damage will lie	$P_{Sl}$ : The probability the damage will lie	
entirely below the tank	entirely below the tank	
$P_{Su}$ : The probability the damage will lie	$P_{Su}$ : The probability the damage will lie	
entirely above the tank	entirely above the tank	
$P_{Sy}$ : The probability the damage will lie entirely	$P_{Sy}$ : The probability the damage will lie entirely	
outboard of the tank. $P_{Sy}$ is to be calculated as	outboard of the tank. $P_{Sy}$ is to be calculated as	
follows. However, $P_{Sy}$ is not to be taken	follows. However, $P_{Sy}$ is not to be taken	
greater than 1.	greater than 1.	

	P = (24.06 - 100.6  av/P)(av/P)			D = (24.06 + 100.6  av/P)(av/P)	
	$P_{Sy} = (24.96 - 199.6  y/B_S)(y/B_S)$			$P_{Sy} = (24.96 - 199.6  y/B_S)(y/B_S)$	
	for $y/B_s \le 0.05$ $P_{Sy} = 0.749 + \{5 - 44.4(y/B_s - 0.05)\}(y/B_s - 0.05)$			for $y/B_S \le 0.05$ $P_{Sy} = 0.749 + \{5 - 44.4(y/B_S - 0.05)\}(y/B_S - 0.05)$	
	for $0.05 < y/B_S < 0.1$ $P_{Sy} = 0.888 + 0.56(y/B_S - 0.1)$			for $0.05 < y/B_S < 0.1$ $P_{Sy} = 0.888 + 0.56(y/B_S - 0.1)$	
$X_a$ $X_f$ $Z_l$ $Z_u$ y	<ul> <li>terminal of L<sub>f</sub> to the aftmost point on the compartment being considered (m)</li> <li>The longitudinal distance from the aft terminal of L<sub>f</sub> to the foremost point on the compartment being considered (m)</li> <li>The vertical distance from the moulded baseline to the lowest point on the compartment being considered (m). Where Z<sub>l</sub> is greater than D<sub>S</sub>, Z<sub>l</sub> is to be taken as D<sub>S</sub>.</li> <li>The vertical distance from the moulded baseline to the highest point on the compartment being considered (m). Where Z<sub>l</sub> is greater than D<sub>S</sub>, Z<sub>l</sub> is to be taken as D<sub>S</sub>.</li> </ul>		$X_f$ : $Z_l$ : $Z_u$ :	for $y/B_S \ge 0.1$ The longitudinal distance from the aft terminal of $L_f$ to the aftmost point on the compartment being considered (m) The longitudinal distance from the aft terminal of $L_f$ to the foremost point on the compartment being considered (m) The vertical distance from the moulded baseline to the lowest point on the compartment being considered (m). Where $Z_l$ is greater than $D_S$ , $Z_l$ is to be taken as $D_S$ . The vertical distance from the moulded baseline to the highest point on the compartment being considered (m). Where $Z_u$ is greater than $D_S$ , $Z_u$ is to be taken as $D_S$ . The minimum horizontal distance measured at right angles to the centreline between the compartment under consideration and the side shell (m). In way of the turn of the bilge, y need not to be considered below a distance h above baseline, where h is lesser of $B/10$ ,	
	3m or the top of the tank.			3m or the top of the tank.	
(7) The	probability $P_B$ of breaching a compartment from	(7)	The pro	bability $P_B$ of breaching a compartment from	
botte	om damage is to be calculated as follows:		bottom	damage is to be calculated as follows:	
$P_B =$	$= P_{BL} \cdot P_{BT} \cdot P_{BV}$		$P_B = P_B$	$BL \cdot P_{BT} \cdot P_{BV}$	

Editorial Correction for Technical Rules and Guidance

$P_{BL} = 1 - P_{Bf} - P_{Ba}$ : Probability the	$P_{BL} = 1 - P_{Bf} - P_{Ba}$ : Probability the	
damage will extend into the	damage will extend into the	
longitudinal zone bounded by $X_a$ and	longitudinal zone bounded by $X_a$ and	
Xf	Xf	
$P_{BT} = 1 - P_{Bp} - P_{Bs}$ : Probability the	$P_{BT} = 1 - P_{Bp} - P_{Bs}$ : Probability the	
damage will extend into the	damage will extend into the	
transverse zone bounded by $Y_p$ and	transverse zone bounded by $Y_p$ and	
$Y_s$	$Y_s$	
$P_{BV} = 1 - P_{BZ}$ : Probability the damage	$P_{BV} = 1 - P_{Bz}$ : Probability the damage	
will extend vertically beyond the	will extend vertically beyond the	
boundary defined by z	boundary defined by z	
$P_{Ba}, P_{Bf}, P_{Bp} \text{ and } P_{Bs}$ : Probabilities	$P_{Ba}, P_{Bf}, P_{Bp}$ and $P_{Bs}$ : Probabilities	
defined as the follows,	defined as the follows,	
are to be determined by	are to be determined by	
linear interpolation from	linear interpolation from	
the table of probabilities	the table of probabilities	
for side damage provided	for side damage provided	
in Table 3-2.	in Table 3-2.	
$P_{Ba}$ : The probability the damage will lie	$P_{Ba}$ : The probability the damage will lie	
entirely aft of location $X_a/L_f$	entirely aft of location $X_a/L_f$	
$P_{Bf}$ : The probability the damage will lie	$P_{Bf}$ : The probability the damage will lie	
entirely forward of location $X_f/L_f$	entirely forward of location $X_f/L_f$	
$P_{Bp}$ : The probability the damage will lie	$P_{Bp}$ : The probability the damage will lie	
entirely to port of the tank	entirely to port of the tank	
$P_{Bs}$ : The probability the damage will lie	$P_{Bs}$ : The probability the damage will lie	
entirely to starboard of the tank	entirely to starboard of the tank	
$P_{Bz}$ : The probability the damage will lie entirely	$P_{Bz}$ : The probability the damage will lie entirely	
below the tank. $P_{Bz}$ is to be calculated as	below the tank. $P_{Bz}$ is to be calculated as	
follows. However, $P_{Bz}$ is not to be taken	follows. However, $P_{Bz}$ is not to be taken	
greater than 1.	greater than 1.	
$P_{Bz} = (14.5 - 67 z/D_S)(z/D_S)$ for	$P_{Bz} = (14.5 - 67 z/D_S)(z/D_S)$ for	
$z/D_S \le 0.1$	$z/D_S \leq 0.1$	
$P_{Bz} = 0.78 + 1.1(z/D_s - 0.1)$ for	$P_{BZ} = 0.78 + 1.1(z/D_S - 0.1)$ for	
$z/D_{S} > 0.1$	$z/D_S > 0.1$	
· •		

	$D_S$ : The moulded depth, in <i>m</i> , measured at mid-	$D_S$ : The moulded depth, in <i>m</i> , measured at mid-	
	length to the upper deck at side	length to the upper deck at side	
	$X_a$ and $X_f$ : As defined in (6)	$X_a$ and $X_f$ : As defined in (6)	
	$Y_p$ : The transverse distance from the port-most	$Y_p$ : The transverse distance from the port-most	
	point on the compartment located at or below	point on the compartment located at or below	
	the waterline $d_B$ , to a vertical plane located	the waterline $d_B$ , to a vertical plane located	
	$B_B/2$ to starboard of the ship's centerline ( <i>m</i> ).	$B_B/2$ to starboard of the ship's centerline ( <i>m</i> ).	
	$Y_s$ : The transverse distance from the starboard-	$Y_s$ : The transverse distance from the starboard-	
	most point on the compartment located at or	most point on the compartment located at or	
	below the waterline $d_B$ , to a vertical plane	below the waterline $d_B$ , to a vertical plane	
	located $B_B$ /2 to starboard of the ship's	located $B_B$ /2 to starboard of the ship's	
	centerline ( <i>m</i> )	centerline ( <i>m</i> )	
	z : The minimum value of $z$ over the length of	z : The minimum value of $z$ over the length of	
	the compartment, where, at any given	the compartment, where, at any given	
	longitudinal location, $z$ is the vertical	longitudinal location, $z$ is the vertical	
	distance from the lower point of the bottom	distance from the lower point of the bottom	
	shell at that longitudinal location to the lower	shell at that longitudinal location to the lower	
	point of the compartment at that longitudinal	point of the compartment at that longitudinal	
	location ( <i>m</i> ).	location ( <i>m</i> ).	
(8)	For the purpose of maintenance and inspection, any	(8) For the purpose of maintenance and inspection, any	
	oil fuel tanks that do not border the outer shell plating	oil fuel tanks that do not border the outer shell plating	
	are to be located no closer to the bottom shell plating	are to be located no closer to the bottom shell plating	
	than the minimum value of $h$ in -5 and no closer to the	than the minimum value of $h$ in -5 and no closer to the	
	side shell plating than the applicable minimum value	side shell plating than the applicable minimum value	
	of w in -6 or -7.	of $w$ in -6 or -7.	

### Rules for Marine Pollution Prevention Systems Part 3 Chapter 3 3.2.4(1)

(	Correction		Present	Note
<ul> <li>(1) Every oil tanker above is to compl requirements (a) to (a) The entire carg ballast tanks o oil as follows:</li> <li>i) Wing tank the full de top of the deck, disra fitted. The cargo tar moulded nowhere l shown in section at specified l</li> </ul>	of 5,000 <i>tonnes</i> deadweight and y with any one of the following (c): go tank length is to be protected by r spaces other than tanks that carry as or spaces are to extend either for epth of the ship's side or from the e double bottom to the uppermost egarding a rounded gunwale where ey are to be arranged such that the line of the side shell plating, ess than the distance w which, as <b>Fig. 3-4</b> , is measured at any cross- right angles to the side shell, as	above is requirem (a) The balla oil a i)	il tanker of 5,000 <i>tonnes</i> deadweight and to comply with any one of the following nents (a) to (c) : entire cargo tank length is to be protected by ast tanks or spaces other than tanks that carry s follows: Wing tanks or spaces are to extend either for the full depth of the ship's side or from the top of the double bottom to the uppermost deck, disregarding a rounded gunwale where fitted. They are to be arranged such that the cargo tanks are located inboad of the moulded line of the side shell plating, nowhere less than the distance w which, as shown in <b>Fig. 3-4</b> , is measured at any cross- section at right angles to the side shell, as specified below: $w = 0.5 + \frac{DW}{20.000}$ or 2.0 <i>m</i> , whichever is the	
lesser. However, ii) At any cro bottom ta distance $h$ tanks and shell plati bottom sh not less th h = B/15 o However, iii) When the	20,000 the minimum value of $h = 1.0m$ ass-section the depth of each double nk or space is to be such that the between the bottom of the cargo the moulded line of the bottom ng measured at right angles to the ell plating as shown in <b>Fig. 3-4</b> is an specified below: or 2.0m, whichever is the lesser. the minimum value of $h = 1.0m$ distances h and w are different at e bilge area or at locations without	ii) iii)	lesser. However, the minimum value of $h = 1.0m$ At any cross-section the depth of each double bottom tank or space is to be such that the distance <i>h</i> between the bottom of the cargo tanks and the moulded line of the bottom shell plating measured at right angles to the bottom shell plating as shown in <b>Fig. 3-4</b> is not less than specified below: h = B/15 or 2.0 <i>m</i> , whichever is the lesser. However, the minimum value of $h = 1.0m$ When the distances <i>h</i> and <i>w</i> are different at turn of the bilge area or at locations without	

a clearly defined turn of the bilge, the distance w is to have preference at levels exceeding 1.5h above the base line as shown in Fig. 3-4.

- iv) On crude oil tankers of 20,000 tonnes deadweight and above and product carriers of 30,000 tonnes deadweight and above, the aggregate capacity of wing tanks, double bottom tanks, forepeak tanks and afterpeak tanks are not to be less than the capacity of segregated ballast tanks necessary to meet the requirements of **3.2.3(1)**. Wing tanks or spaces and double bottom tanks used to meet the requirements of **3.2.3(1)** are to be located as uniformly as practicable along the cargo tank length. Additional segregated ballast capacity provided for reducing longitudinal hull girder bending stress, trim, etc., may be located anywhere within the ship.
- v) Suction wells in cargo tanks may protrude into the double bottom below the boundary line defined by the distance h provided that such wells are as small as practicable and the distance between the well bottom and bottom shell plating is not to be less than 0.5h.
- vi) Ballast piping and other piping such as sounding and vent piping to ballast tanks are not to pass through cargo tanks. Cargo piping and similar piping to cargo tanks are not to pass through ballast tanks. Exemptions to this requirement may be granted for short lengths of piping, provided that they are completely welded or equivalent.

a clearly defined turn of the bilge, the distance w is to have preference at levels exceeding 1.5*h* above the base line as shown in **Fig. 3-4**.

- iv) On crude oil tankers of 20,000 tonnes deadweight and above and product carriers of 30,000 tonnes deadweight and above, the aggregate capacity of wing tanks, double bottom tanks, forepeak tanks and afterpeak tanks are not to be less than the capacity of segregated ballast tanks necessary to meet the requirements of **3.2.3(1)**. Wing tanks or spaces and double bottom tanks used to meet the requirements of **3.2.3(1)** are to be located as uniformly as practicable along the cargo tank length. Additional segregated ballast capacity provided for reducing longitudinal hull girder bending stress, trim, etc., may be located anywhere within the ship.
- v) Suction wells in cargo tanks may protrude into the double bottom below the boundary line defined by the distance *h* provided that such wells are as small as practicable and the distance between the well bottom and bottom shell plating is not to be less than 0.5*h*.
- vi) Ballast piping and other piping such as sounding and vent piping to ballast tanks are not to pass through cargo tanks. Cargo piping and similar piping to cargo tanks are not to pass through ballast tanks. Exemptions to this requirement may be granted for short lengths of piping, provided that they are completely welded or equivalent.

<ul> <li>(b) The entire cargo tank length is to be protected by mid-deck plating, ballast tanks or spaces other than cargo and fuel oil tanks as follows:</li> <li>i) The cargo and vapour pressure exerted on the bottom shell plating forming a single boundary between the cargo and the sea is not to exceed the external hydrostatic water pressure as expressed by the following formula :</li> </ul>	<ul> <li>(b) The entire cargo tank length is to be protected by mid-deck plating, ballast tanks or spaces other than cargo and fuel oil tanks as follows:</li> <li>i) The cargo and vapour pressure exerted on the bottom shell plating forming a single boundary between the cargo and the sea is not to exceed the external hydrostatic water pressure as expressed by the following formula :</li> </ul>	
$f \cdot h_c \cdot \rho_c \cdot g + 100 \cdot \Delta p \le d_n \cdot \rho_s \cdot g$ where: $h_c : \text{height of cargo in contact with the bottom shell plating in } m$ $\rho_c : \text{maximum cargo density in } t/m^3$ $d_n : \text{minimum operating draught under any expected loading condition in } m$ $\rho_s : \text{density of sea water in } t/m^3$ $\Delta p : \text{maximum set pressure of pressure/vacuum valve provided for the cargo tank in bars}$ $f : \text{safety factor} = 1.1$ $g : \text{standard acceleration of gravity} = 9.81$ $m/sec.^2$	$f \cdot h_c \cdot \rho_c \cdot g + 100 \cdot \Delta p \le d_n \cdot \rho_s \cdot g$ where: $h_c : \text{ height of cargo in contact with the bottom shell plating in } m$ $\rho_c : \text{maximum cargo density in } t/m^3$ $d_n : \text{minimum operating draught under any expected loading condition in } m$ $\rho_s : \text{density of sea water in } t/m^3$ $\Delta p : \text{maximum set pressure of pressure/vacuum valve provided for the cargo tank in bars}$ $f : \text{safety factor} = 1.1$ $g : \text{standard acceleration of gravity} = 9.81$ $m/sec.^2$	
<ul> <li>ii) Any horizontal partition necessary to fulfill the above requirements is to be located at a height of not less than <i>B</i>/6 or 6<i>m</i>, whichever is the lesser, but not more than 0.6<i>D</i>, above the base line where <i>D</i> is the moulded depth amidships.</li> <li>iii) The location of wing tanks or spaces is to be as defined in 3.2.4(1)(a)i) except that, below a level 1.5<i>h</i> above the baseline where <i>h</i> is as defined in 3.2.4(1)(a)ii), the cargo tank boundary line may be vertical down to the</li> </ul>	<ul> <li>ii) Any horizontal partition necessary to fulfill the above requirements is to be located at a height of not less than <i>B</i>/6 or 6<i>m</i>, whichever is the lesser, but not more than 0.6<i>D</i>, above the base line where <i>D</i> is the moulded depth amidships.</li> <li>iii) The location of wing tanks or spaces is to be as defined in 3.2.4(1)(a)i) except that, below a level 1.5<i>h</i> above the baseline where <i>h</i> is as defined in 3.2.4(1)(a)ii), the cargo tank boundary line may be vertical down to the</li> </ul>	

#### bottom plating, as shown in Fig. 3-5.

- iv) On crude oil tankers of 20,000 *tonnes* deadweight and above and product carriers of 30,000 *tonnes* deadweight and above, the aggregate capacity of wing tanks, forepeak tanks and afterpeak tanks are to be comply with the requirements of **3.2.4(1)(a)iv**).
- v) Ballast piping and cargo piping are to be comply with the requirements of 3.2.4(1)(a)vi).
- (c) Other methods of design and construction of oil tankers may be accepted as alternatives to the requirements prescribed in 3.2.4(1)(a), provided that such methods ensure at least the same level of protection against oil pollution in the event of collision or stranding by the Society.
- (2) Oil tankers of less than 5,000 *tonnes* deadweight are to comply with the following requirements (a) and (b):
  - (a) Double bottom tanks or spaces in accordance with 3.2.4(1)(a)ii) are to be arranged along the entire cargo tank length. However, the distance *h* specified in 3.2.4(1)(a)ii) may comply with the following:

*h*=*B*/15 (*m*)

However, the minimum value of h=0.76m in the turn of the bilge area and at locations without a clearly defined turn of the bilge, the cargo tank boundary line is to run parallel to the line of the mid-ship flat bottom as shown in **Fig. 3-6**.

(b) The capacity of each cargo tanks is not to exceed  $700m^3$  unless wing tanks or spaces in accordance with **3.2.4(1)(a)i**) are arranged along the entire cargo tank length. However, the distance w

bottom plating, as shown in Fig. 3-5.

- iv) On crude oil tankers of 20,000 *tonnes* deadweight and above and product carriers of 30,000 *tonnes* deadweight and above, the aggregate capacity of wing tanks, forepeak tanks and afterpeak tanks are to be comply with the requirements of **3.2.4(1)(a)iv**).
- v) Ballast piping and cargo piping are to be comply with the requirements of 3.2.4(1)(a)vi).
- (c) Other methods of design and construction of oil tankers may be accepted as alternatives to the requirements prescribed in 3.2.4(1)(a), provided that such methods ensure at least the same level of protection against oil pollution in the event of collision or stranding by the Society.
- (2) Oil tankers of less than 5,000 *tonnes* deadweight are to comply with the following requirements (a) and (b):
  - (a) Double bottom tanks or spaces in accordance with 3.2.4(1)(a)ii) are to be arranged along the entire cargo tank length. However, the distance *h* specified in 3.2.4(1)(a)ii) may comply with the following:

h=B/15(m)

However, the minimum value of h=0.76m in the turn of the bilge area and at locations without a clearly defined turn of the bilge, the cargo tank boundary line is to run parallel to the line of the mid-ship flat bottom as shown in **Fig. 3-6**.

(b) The capacity of each cargo tanks is not to exceed  $700m^3$  unless wing tanks or spaces in accordance with **3.2.4(1)(a)i**) are arranged along the entire cargo tank length. However, the distance w

	specified in 3.2.4(1)(a)i) may comply with the		specified in 3.2.4(1)(a)i) may comply with the	
	following:		following:	
	$w = 0.4 + \frac{2.4DW}{20,000} (m)$		$w = 0.4 + \frac{2.4DW}{20,000} (m)$	
	However, the minimum value of <i>h</i> =0.76 <i>m</i>		However, the minimum value of <i>h</i> =0.76 <i>m</i>	
(3)	Notwithstanding the requirement of 1.2.1.3-1, for an	(3)	Notwithstanding the requirement of <b>1.1.3-1</b> , for an oil	Reference correction
	oil tanker of 500 gross tonnage and above, which is		tanker of 500 gross tonnage and above, which is	
	engaged in international voyages and which were at		engaged in international voyages and which were at	
	beginning stage of construction on and after 1		beginning stage of construction on and after 1	
	September 1984, oil is not to be carried in any space		September 1984, oil is not to be carried in any space	
	extending forward of a collision bulkhead located in		extending forward of a collision bulkhead located in	
	accordance with 2.2.1.1-1 and -2, Part 1, Part C of		accordance with 2.2.1.1-1 and -2, Part 1, Part C of	
	the Rules for the Survey and Construction of Steel		the Rules for the Survey and Construction of Steel	
	Ships. An oil tanker other than the above is not to		Ships. An oil tanker other than the above is not to	
	carry oil in any space extending forward of the		carry oil in any space extending forward of the	
	transverse plane perpendicular to the centreline that is		transverse plane perpendicular to the centreline that is	
	located as if it were a collision bulkhead located in		located as if it were a collision bulkhead located in	
	accordance with that requirement.		accordance with that requirement.	

## Rules for Marine Pollution Prevention Systems Part 4 Chapter 2 2.2.3

Correction	Present	Note
Notwithstanding the provisions in 2.2.2, an	Notwithstanding the provisions in 2.2.2, an	
Administration may exempt ships from the carriage	Administration may exempt ships from the carriage	
requirements under Part S of the Rules for the Survey and	requirements under Part S of the Rules for the Survey and	
Construction of Steel Ships or Bulk Chemical Code for	Construction of Steel Ships or Bulk Chemical Code for	
ships certified to carry individually identified vegetable oils in	ships certified to carry individually identified vegetable oils in	
Table S17.1 in Part S of the Rules for the Survey and	Table S17.1 in Part S of the Rules for the Survey and	
Construction of Steel Ships, provided the ships complies	Construction of Steel Ships, provided the ships complies	
with the following conditions:	with the following conditions:	
(1) Ships shall meet all requirements for ship type 3 as	(1) Ships shall meet all requirements for ship type 3 as	
identified in 2.1.2-4(3) in Part S of the Rules for the	identified in 2.1.2-1(3) in Part S of the Rules for the	Reference correction
Survey and Construction of Steel Ships except for	Survey and Construction of Steel Ships except for	
cargo tank location.	cargo tank location.	
(2) Under this regulation, cargo tanks shall be located at	(2) Under this regulation, cargo tanks shall be located at	
the following distances inboard. The entire cargo tank	the following distances inboard. The entire cargo tank	
length shall be protected by ballast tanks or spaces	length shall be protected by ballast tanks or spaces	
other than tanks that carry oils as follows:	other than tanks that carry oils as follows:	
(a) Wing tanks or spaces shall be arranged such that		
cargo tanks are located inboard of the moulded	cargo tanks are located inboard of the moulded	
line of the side shell plating nowhere less than	line of the side shell plating nowhere less than	
760 mm.	760 mm.	
(b) Double bottom tanks or spaces shall be arranged		
such that the distance between the bottom of the	such that the distance between the bottom of the	
cargo tanks and the moulded line of the bottom	cargo tanks and the moulded line of the bottom	
shell plating is not less than $B/15$ ( <i>m</i> ) or 2.0 <i>m</i> at	1 0	
the centerline, whichever is the lesser. The	the centerline, whichever is the lesser. The	
minimum distance shall be 1.0 m.	minimum distance shall be 1.0 m.	

# Rules for Marine Pollution Prevention Systems Part 4 Chapter 4 4.5.1-2

Correction	Present	Note
2 For ships intending to discharge the residue/water	2 For ships intending to discharge the residue/water	
mixture generated by tank washing to reception facilities	mixture generated by tank washing to reception facilities	
exclusively through the discharge arrangements of the ship,	exclusively through the discharge arrangements of the ship,	
relaxation of the requirements of the preceding 4.6.1-1 above	relaxation of the requirements of the preceding 4.6.1-1 above	Wording correction
may be considered where the Society judges it to be	may be considered where the Society judges it to be	
appropriate.	appropriate.	

### Rules for Marine Pollution Prevention Systems Part 9 Chapter 2 2.1.1

	Correction		Present	Note
	The documents in the following (1) to (5) are to be		The documents in the following (1) to (5) are to be	
those v	where operation in polar waters is taken into account, as	those w	where operation in polar waters is taken into account, as	
approp		approp	riate.	
(1)	The Oil Record Books specified in 1.2.2, Part 3;	(1)	The Oil Record Books specified in 1.2.2, Part 3;	
(2)	The Procedures and Arrangements Manual for the	(2)	The Procedures and Arrangements Manual for the	
	approved crude oil washing system specified in 1.3.2-		approved crude oil washing system specified in 1.3.2-	
	1(1)(b), Part 2;		1(1)(b), Part 2;	
(3)	The operation manual for the oil discharge monitoring	(3)	The operation manual for the oil discharge monitoring	
	and control system specified in 3.3.1-9, Part 23;		and control system specified in 3.3.1-9, Part 2;	Reference correction
(4)	The clean ballast tank operations manual specified in	(4)	The clean ballast tank operations manual specified in	
	<b>4.3.4-4, Part 3</b> ; and		<b>4.3.4-4, Part 3</b> ; and	
(5)	The shipboard oil pollution emergency plan specified	(5)	The shipboard oil pollution emergency plan specified	
	in Part 5 or the shipboard marine pollution		in Part 5 or the shipboard marine pollution	
	emergency plan specified in 2.2.3, Part 6.		emergency plan specified in 2.2.3, Part 6.	

## Rules for Radio Installations Chapter 1 1.1.1-1

Correction	Present	Note
1 Rules for Radio Installations (hereinafter referred to	1 Rules for Radio Installations (hereinafter referred to	
as "the Rules") apply to the radio installations of ships	as "the Rules") apply to the radio installations of ships	
classed or to be classed with NIPPON KAIJI KYOKAI	classed or to be classed with NIPPON KAIJI KYOKAI	
(hereinafter referred to as "the Society") under Chapter 2 of	(hereinafter referred to as "the Society") under Chapter 2 of	
the Regulations for the Classification and Registry of	the Regulations for the Classification and Registry of	
Ships and intended to be registered under Chapter 3 of the	Ships and intended to be registered under Chapter 3 of the	Wording correction
same-Regulations. for the Classification and Registry of	same Regulations.	wording correction
Ships.		

#### Rules for Ballast Water Management Installations Part 2 Chapter 1 1.1.3-6

Correction	Present	Note
6 Unscheduled Surveys	6 Unscheduled Surveys	
The classed ships may be subject to Unscheduled Surveys	The classed ships may be subject to Unscheduled Surveys	
when the confirmation of the status of the installations by	when the confirmation of the status of the installations by	
survey is deemed necessary in cases where the Society	survey is deemed necessary in cases where the Society	
considers the installations to be subject to 1.4-3 of the	considers the installations to be subject to 1.4-3 of the	
<b>CONDITIONS OF SERVICE FOR CLASSIFICATION</b>	CONDITIONS OF SERVICE FOR CLASSIFICATION	Wording connection
OF SHIPS AND REGISTRATION OF	OF SHIPS AND REGISTRATION OF	Wording correction
INSTALLATIONS. Conditions of Service for	INSTALLATIONS.	
Classification of Ships and Registration of Installations.		

#### Rules for Ballast Water Management Installations Part 4 Chapter 2 2.2.1-9

Correction	Present	Note
9 In general, <i>BWMS</i> monitoring functions of <i>BWMS</i>	9 In general, <i>BWMS</i> monitoring functions of <i>BWMS</i>	
belong to system category I when applying Annex	belong to system category I when applying Annex D18.1.1,	
<b>D18.1.1, Part X of the Guidance Rules for the Survey and</b>	the Guidance for the Survey and Construction of Steel	Reference correction
Construction of Steel Ships. However, in cases where by-	Ships. However, in cases where by-pass valves are integrated	
pass valves are integrated into valve remote control systems,	into valve remote control systems, such by-pass valves belong	
such by-pass valves belong to the system category II for	to the system category II for ballast transfer remote control	
ballast transfer remote control systems.	systems.	

#### Rules for Ballast Water Management Installations Part 4 Chapter 2 2.2.2-2

Correction	Present	Note
2 For <i>BWMS</i> categories 3a, 3b and 3c, the inert gas or	2 For <i>BWMS</i> categories 3a, 3b and 3c, the inert gas or	
nitrogen-product-enriched air from inert gas systems and from	nitrogen-product-enriched air from inert gas systems and from	
protection devices provided for ballast tanks (e.g. P/V valves,	protection devices provided for ballast tanks (e.g. P/V valves,	
P/V breakers or P/V breather valves) is to be discharged to the	P/V breakers or P/V breather valves) is to be discharged to the	
safe locations on open decks specified in $2.2.1-2-13(1)$ and (2).	safe locations on open decks specified in 2.1.2-13(1) and (2).	Reference correction

### Rules for Ballast Water Management Installations Part 4 Chapter 2 2.2.3-8

Correction	Present	Note
8 When fore peak tanks are ballasted with piping systems serving other ballast tanks within cargo areas in accordance with D14.3.2, <u>Part D of the Guidance for the Survey and Construction of Steel Ships</u> , the fore peak tank ballast water is to be processed by the same <i>BWMS</i> processing	8 When fore peak tanks are ballasted with piping systems serving other ballast tanks within cargo areas in accordance with D14.3.2, the Guidance for the Survey and Construction of Steel Ships, the fore peak tank ballast water is to be processed by the same <i>BWMS</i> processing the ballast	Wording correction
the ballast water of the other ballast tanks within the cargo area.	water of the other ballast tanks within the cargo area.	

### Rules for Ballast Water Management Installations Part 4 Chapter 2 2.2.3-12

Correction	Present	Note
12 When fore peak tanks are ballasted with piping	12 When fore peak tanks are ballasted with piping	
systems serving other ballast tanks within cargo areas in	systems serving other ballast tanks within cargo areas in	W
accordance with D14.3.2, Part D of the Guidance for the	accordance with D14.3.2, the Guidance for the Survey and	Wording correction
Survey and Construction of Steel Ships, the appropriate	Construction of Steel Ships, the appropriate isolation	
isolation arrangements described in -9 and -10 above are not	arrangements described in -9 and -10 above are not required	
required between fore peak tanks and common ballast water	between fore peak tanks and common ballast water piping	
piping serving the other ballast tanks within the cargo area.	serving the other ballast tanks within the cargo area.	

## Rules for Ballast Water Management Installations Part 4 Chapter 2 2.2.4-1(3)

Correction	Present	Note
<ul> <li>(3) Ozone sensors</li> <li>(a) For <i>BWMS</i> categories 7a and 7b, at least one ozone sensor is to be provided in the vicinity of discharge outlets to open decks from the ozone destructors specified in 2.212.1-13(7) and (8) to alarms when ozone concentration levels rise above 0.1 <i>ppm</i>. In such cases, audible and visual alarms are to be activated in <i>BWMS</i> control rooms.</li> </ul>	<ul> <li>(3) Ozone sensors</li> <li>(a) For <i>BWMS</i> categories 7a and 7b, at least one ozone sensor is to be provided in the vicinity of discharge outlets to open decks from the ozone destructors specified in 2.21-13(7) and (8) to alarms when ozone concentration levels rise above 0.1 <i>ppm</i>. In such cases, audible and visual alarms are to be activated in <i>BWMS</i> control rooms.</li> </ul>	Reference correction
<ul> <li>(b) In addition to the ozone sensors described in (1) above, at least two ozone sensors are to be positioned at appropriate spaces in the following i) to iii) spaces.</li> <li>i) Spaces where ozone generators are fitted ii) Spaces where ozone destructors are fitted iii) Spaces where ozone piping is routed</li> </ul>	<ul> <li>(b) In addition to the ozone sensors described in (1) above, at least two ozone sensors are to be positioned at appropriate spaces in the following i) to iii) spaces.</li> <li>i) Spaces where ozone generators are fitted ii) Spaces where ozone destructors are fitted iii) Spaces where ozone piping is routed</li> </ul>	
<ul> <li>(c) Audible and visual alarms are to be activated at the following i) to iii) locations when the ozone concentration levels of the ozone sensors described in (b) above rises above 0.1 ppm.</li> <li>i) Inside the space</li> <li>ii) At the entrance to the space</li> <li>iii) Inside the BWMS control station</li> </ul>	<ul> <li>(c) Audible and visual alarms are to be activated at the following i) to iii) locations when the ozone concentration levels of the ozone sensors described in (b) above rises above 0.1 ppm.</li> <li>i) Inside the space</li> <li>ii) At the entrance to the space</li> <li>iii) Inside the BWMS control station</li> </ul>	
<ul><li>(d) Automatic <i>BWMS</i> shut-down is to be arranged so as to activate when the ozone concentration measured from one of the two sensors described in (b) above inside the space rises above 0.2 <i>ppm</i>.</li></ul>	<ul> <li>(d) Automatic <i>BWMS</i> shut-down is to be arranged so as to activate when the ozone concentration measured from one of the two sensors described in (b) above inside the space rises above 0.2 <i>ppm</i>.</li> </ul>	

## Rules for Ballast Water Management Installations Part 4 Chapter 3 3.6.2-2(4)

Correction	Present	Note
(4) Notwithstanding (1) above, plastic pipes may be	(4) Notwithstanding (1) above, plastic pipes may be	
accepted after due assessment of the dangerous gases	accepted after due assessment of the dangerous gases	
or dangerous liquids conveyed inside. When plastic	or dangerous liquids conveyed inside. When plastic	
pipes are accepted, such pipes are subject to Annex		
D1212.1.6-2, Part D of the GuidanceRules for the	D12.1.6-2, the Guidance for the Survey and	Reference correction
Survey and Construction of Steel Ships.	Construction of Steel Ships.	

## Rules for Cargo Refrigerating Installations Chapter 2 2.1.2-2

	Correction		Present	Note
underg	Registration Maintenance Surveys igerating installations which have been registered are to o surveys in accordance with the following intervals to in their registrations. Special Surveys are to be carried out at intervals specified in 1.1.3-1(3), Part B of the Rules for the Survey and Construction of Steel Ships. Annual Surveys are to be carried out at intervals specified in 1.1.3-1(1), Part B of the Rules for the Survey and Construction of Steel Ships. Annual Surveys are to be carried out at intervals specified in 1.1.3-1(1), Part B of the Rules for the Survey and Construction of Steel Ships. An Occasional Survey: At a time falling on any of (a) to (d) mentioned below, independently of special surveys and annual surveys. To implement the survey, in lieu of the traditional ordinary surveys where a surveyor is in attendance, the Society may approve survey methods which it considers to be appropriate. (a) When main parts of the installations have been	underg	Registration Maintenance Surveys rigerating installations which have been registered are to go surveys in accordance with the following intervals to in their registrations. Special Surveys are to be carried out at intervals specified in 1.1.3-1(3), Part B of the Rules for the Survey and Construction of Steel Ships. Annual Surveys are to be carried out at intervals specified in 1.1.3-1(1), Part B of the Rules for the Survey and Construction of Steel Ships. Annual Survey: At a time falling on any of (a) to (d) mentioned below, independently of special surveys and annual surveys. To implement the survey, in lieu of the traditional ordinary surveys where a survey or is in attendance, the Society may approve survey methods which it considers to be appropriate. (a) When main parts of the installations have been	Note Wording correction
(4)	<ul> <li>damaged, repaired or renewed.</li> <li>(b) When the installations are modified or altered.</li> <li>(c) When it is considered necessary by the Society that an important part of the installation should be repaired at a time other than date for the special or annual survey.</li> <li>(d) When a survey is needed for a reason other than the above.</li> <li>The classed ships may be subject to Unscheduled Surveys when the confirmation of the status of the installations by survey is deemed necessary in cases where the Society considers the installations to be subject to 1.4-3 of the CONDITIONS OF SERVICE FOR CLASSIFICATION OF SHIPS AND REGISTRATION OF</li> </ul>	(4)	<ul> <li>damaged, repaired or renewed.</li> <li>(b) When the installations are modified or altered.</li> <li>(c) When it is considered necessary by the Society that an important part of the installation should be repaired at a time other than date for the special or annual survey.</li> <li>(d) When a survey is needed for a reason other than the above.</li> <li>The classed ships may be subject to Unscheduled Surveys when the confirmation of the status of the installations by survey is deemed necessary in cases where the Society considers the installations to be subject to 1.4-3 of the CONDITIONS OF SERVICE FOR CLASSIFICATION OF SHIPS AND REGISTRATION OF INSTALLATIONS.</li> </ul>	

 INSTALLATION	NS.	Condit	tions	of Service	for
Classification of	f (	Ships	and	Registration	of
Installations.					

## Rules for Cargo Refrigerating Installations Chapter 3 3.2.9-2

Correction	Present	Note
2 Pipes and pipe flange couplings are to be in accordance	2 Pipes and pipe flange couplings are to be in accordance	Wording correction
with the requirements for air in Table <u>D-12D12</u> .10, Chapter	with the requirements for air in Table D 12.10, Chapter 12,	working correction
12, Part D of the Rules for the Survey and Construction of	Part D of the Rules for the Survey and Construction of	
Steel Ships.	Steel Ships.	

#### Rules for Diving Systems Chapter 2 2.1.2-2

Correction			Present	Note
2	8		Registration Maintenance Surveys are to be carried out	Wording correction
at the times as prescribed in $(1)$ to $(4)$ below.		at the times as prescribed in $(1)$ to $(4)$ below.		to or anny correction
(1)	Special Surveys are to be carried out at intervals	(1)	Special Surveys are to be carried out at intervals	
	specified in 1.1.3-1(3), Part B of the Rules for the		specified in 1.1.3-1(3), Part B of the Rules for the	
	Survey and Construction of Steel Ships.		Survey and Construction of Steel Ships.	
(2)	Annual Surveys are to be carried out at intervals	(2)	Annual Surveys are to be carried out at intervals	
	specified in 1.1.3-1(1), Part B of the Rules for the		specified in 1.1.3-1(1), Part B of the Rules for the	
	Survey and Construction of Steel Ships.		Survey and Construction of Steel Ships.	
(3)	An Occasional Survey: at a time falling on any of (a)	(3)	An Occasional Survey: at a time falling on any of (a)	
	to (c) mentioned below, independently of Special		to (c) mentioned below, independently of Special	
	Surveys and Annual Surveys. To implement the		Surveys and Annual Surveys. To implement the	
	survey, in lieu of the traditional ordinary surveys		survey, in lieu of the traditional ordinary surveys	
	where a surveyor is in attendance, the Society may		where a surveyor is in attendance, the Society may	
	approve survey methods which it considers to be		approve survey methods which it considers to be	
	appropriate.		appropriate.	
	(a) When main parts of the systems have been		(a) When main parts of the systems have been	
	damaged, repaired or renewed.		damaged, repaired or renewed.	
	(b) When the systems are modified or altered.		(b) When the systems are modified or altered.	
	(c) Whenever considered necessary by the Society.	<i>.</i>	(c) Whenever considered necessary by the Society.	
(4)	The classed ships may be subject to Unscheduled	(4)	The classed ships may be subject to Unscheduled	
	Surveys when the confirmation of the status of		Surveys when the confirmation of the status of	
	systems by survey is deemed necessary in cases where		systems by survey is deemed necessary in cases where	
	the Society considers the systems to be subject to		the Society considers the systems to be subject to 1.4-	
	CONDITIONS OF SERVICE FOR		3 of the CONDITIONS OF SERVICE FOR	
	CLASSIFICATION OF SHIPS AND		CLASSIFICATION OF SHIPS AND	
	REGISTRATION OF		<b>REGISTRATION OF INSTALLATIONS.</b>	
	INSTALLATIONS. Conditions of Service for			
ł	Classification of Ships and Registration of			
	Installations.			

## Rules for Diving Systems Chapter 2 2.2.9

	Correction	Present		Note
	Performance tests are to be carried out on the		Performance tests are to be carried out on the	Wording correction
followi	ings:	follow	ings:	
(1)	The life support system specified in	(1)	The life support system specified in Chapter5.	
	Chapter5 <u>Chapter 5</u> .			
(2)	The instruments and communication system specified	(2)	The instruments and communication system specified	
	in <del>Chapter6<u>Chapter 6</u>.</del>		in Chapter6.	
(3) The emergency surfacing arrangement specified in			The emergency surfacing arrangement specified in	
	Chapter7 <u>Chapter 7</u> .		Chapter7.	
(4) The fixed fire-extinguishing system, the fire detection			The fixed fire-extinguishing system, the fire detection	
	and alarm system and the water spray system		and alarm system and the water spray system	
	specified in 9.2.		specified in 9.2.	
(5)	The communication system specified in 6.2.1.	(5)	The communication system specified in 6.2.1.	
(6)	The emergency locating device specified in 6.2.2.	(6)	The emergency locating device specified in 6.2.2.	

### Rules for Diving Systems Chapter 2 2.3.1-1

	Correction		Present	Note
1	At each Special Survey for the diving systems, the	1	At each Special Survey for the diving systems, the	Wording correction
	ing surveys are to be carried out to the satisfaction of		ing surveys are to be carried out to the satisfaction of	5
the Su	5	the Sur	5	
(1)	Inspection of the actual condition of the pressure hull	(1)	Inspection of the actual condition of the pressure hull	
	of the diving bell (including its view ports and		of the diving bell (including its view ports and	
( <b>2</b> )	covers).	( <b>0</b> )	covers).	
(2)	Inspection of the actual condition of the shell structure	(2)	Inspection of the actual condition of the shell structure	
	of the deck decompression chamber and its windows, covers and doors.		of the deck decompression chamber and its windows, covers and doors.	
(3)	Inspection of the actual condition of the handling	(3)	Inspection of the actual condition of the handling	
(3)	system and the breathing gas supply system for	(3)	system and the breathing gas supply system for	
	pressurizing and decompressing.		pressurizing and decompressing.	
(4)	Inspection of the actual condition of the electrical	(4)	Inspection of the actual condition of the electrical	
	installation, the piping systems, etc.		installation, the piping systems, etc.	
(5)	Inspection resistance test of the electrical	(5)	Inspection resistance test of the electrical	
	installations.		installations.	
(6)	Overhaul inspection of the watertight or airtight	(6)	Overhaul inspection of the watertight or airtight	
	packings at the penetrating parts of pipes, shafts,		packings at the penetrating parts of pipes, shafts,	
	cable connectors, etc. through the diving bell or the		cable connectors, etc. through the diving bell or the	
	deck decompression chamber.		deck decompression chamber.	
(7)	Upon removal of view ports, covers and penetrating	(7)	Upon removal of view ports, covers and penetrating	
	pieces of the diving bell and the piping systems		pieces of the diving bell and the piping systems	
	installed outside the diving bell, hydrostatic tests		installed outside the diving bell, hydrostatic tests	
	specified in 2.2.3-1(3), $-3(1)$ and (2) (only for the		specified in 2.2.3-1(3), $-3(1)$ and (2) (only for the	
	hyperbaric diving bell) and 2.2.7(2). Where,		hyperbaric diving bell) and 2.2.7(2). Where,	
	however, it is difficult to carry out these tests, the tests may be substituted by any other tests and		however, it is difficult to carry out these tests, the tests may be substituted by any other tests and	
	inspections subject to the approval by the Society.		inspections subject to the approval by the Society.	
(8)	Upon removal by a cable penetrating parts through	(8)	Upon removal by a cable penetrating parts through	
	the diving bell, hydrostatic tests by a method		the diving bell, hydrostatic tests by a method	
	approved by the Society. Where, however, it is		approved by the Society. Where, however, it is	
	difficult to carry out hydrostatic tests, the tests may		difficult to carry out hydrostatic tests, the tests may	
			· · · ·	

	1 1		1 1 1 1 1 1 1 1 1 1 1	
	be substituted by any other tests and inspections		be substituted by any other tests and inspections	
	subject to the approval by the Society.		subject to the approval by the Society.	
(9)	Pressure tests of piping required by the Surveyor,	(9)	Pressure tests of piping required by the Surveyor,	
	where deemed necessary.		where deemed necessary.	
(10)	Measurement of the plate thickness of the pressure	(10)	Measurement of the plate thickness of the pressure	
	hull of the diving bell and the shell structure of the		hull of the diving bell and the shell structure of the	
	deck decompression chamber, where deemed		deck decompression chamber, where deemed	
	necessary.		necessary.	
(11)	Performance tests of the followings:	(11)	Performance tests of the followings:	
	(a) The life support system specified in		(a) The life support system specified in <b>Chapter5</b>	
	Chapter5Chapter 5			
	(b) The instruments and the communication system		(b) The instruments and the communication system	
	specified in Chapter6Chapter 6		specified in Chapter6	
	(c) The lighting arrangement		(c) The lighting arrangement	
	(d) The electric power receiving system specified in		(d) The electric power receiving system specified in	
	8.5.5		8.5.5	
	(e) The emergency surfacing arrangement specified		(e) The emergency surfacing arrangement specified	
	in Chapter7Chapter 7		in Chapter7	
	(f) The fire detection and alarm system specified in		(f) The fire detection and alarm system specified in	
	9.2.2		9.2.2	
	(g) The communication system specified in 6.2.1		(g) The communication system specified in 6.2.1	
	(h) The emergency locating device specified in 6.2.2		(h) The emergency locating device specified in 6.2.2	
(12)	Diving test to the maximum diving depth or external	(12)	Diving test to the maximum diving depth or external	
	pressure test equivalent thereto.		pressure test equivalent thereto.	
(13)	Performance tests of the fixed fire-extinguishing	(13)	Performance tests of the fixed fire-extinguishing	
	system and the water spray system specified in 9.2.	~ /	system and the water spray system specified in 9.2.	
(14)	Any other inspections deemed necessary by the	(14)	Any other inspections deemed necessary by the	
	Society.		Society.	

### Rules for Automatic and Remote Control Systems Chapter 2 2.1.2

Correction	Present	Note
Correction         Correction         Surveys are to be carried out in accordance with the         following requirements given in (1) and (2):       (1) Registration Surveys are to be carried out at the time of application for registration.         (2) Registration Maintenance Surveys are to be carried out at those times as prescribed in (a) to (d) below.       (a) Special Surveys are to be carried out at those intervals specified in 1.1.3-1(3), Part B of the Rules for the Survey and Construction of Steel Ships.         (b) Annual Surveys are to be carried out at those intervals specified in 1.1.3-1(1), Part B of the Rules for the Survey and Construction of Steel Ships.		Note
<ul> <li>Ships.</li> <li>(c) Occasional Surveys: at a time falling on any of i) to iii) mentioned below, independently of Special Surveys and Annual Surveys. To implement the survey, in lieu of the traditional ordinary surveys where a surveyor is in attendance, the Society may approve survey methods which it considers to be appropriate. <ol> <li>i) In cases where any main parts of systems have been damaged, repaired or renewed.</li> <li>ii) In cases where any systems are modified or altered.</li> <li>iii) In cases where considered necessary by the Society.</li> </ol> </li> <li>(d) The classed ships may be subject to Unscheduled Surveys when the confirmation of the status of systems by survey is deemed necessary in cases where the Society considers the systems to be subject to 1.4-3 of the CONDITIONS OF</li> </ul>	<ul> <li>(c) Occasional Surveys: at a time falling on any of i) to iii) mentioned below, independently of Special Surveys and Annual Surveys. To implement the survey, in lieu of the traditional ordinary surveys where a surveyor is in attendance, the Society may approve survey methods which it considers to be appropriate.</li> <li>i) In cases where any main parts of systems have been damaged, repaired or renewed.</li> <li>ii) In cases where any systems are modified or altered.</li> <li>iii) In cases where considered necessary by the Society.</li> <li>(d) The classed ships may be subject to Unscheduled Surveys when the confirmation of the status of systems by survey is deemed necessary in cases where the Society considers the systems to be methods.</li> </ul>	Wording correction

SERVICE FOR CLASSIFICATION OF	SERVICE FOR CLASSIFICATION OF
SHIPS AND REGISTRATION OF	SHIPS AND REGISTRATION OF
INSTALLATIONS. Conditions of Service for	INSTALLATIONS.
Classification of Ships and Registration of	
Installations.	

### Rules for Integrated Fire Control Systems Chapter 2 2.1.2

	Correction	Present	Note
for Da	The timing of Registration Surveys and the intervals	The timing of Registration Surveys and the intervals	Reference correction
	gistration Maintenance Surveys are as in the following	for Registration Maintenance Surveys are as in the following $(1)$ and $(2)$ Surveys as a rule are to be corriad out at the same	
	(2). Surveys, as a rule, are to be carried out at the same s Classification Surveys.	(1) and (2). Surveys, as a rule, are to be carried out at the same time as Classification Surveys.	
(1)	Registration Surveys are to be carried out at the time	(1) Registration Surveys are to be carried out at the time	
(1)	of application for registration.	of application for registration.	
(2)	Registration Maintenance Surveys are to be carried	(2) Registration Maintenance Surveys are to be carried	
(2)	out at the following intervals:	out at the following intervals:	
	<ul> <li>(a) Special Surveys are to be carried out at those intervals specified in 1.1.3-1(3)(a), Part B of the Rules for the Survey and Construction of Steel Ships.</li> <li>(b) Intermediate Surveys are to be carried out at</li> </ul>	<ul> <li>(a) Special Surveys are to be carried out at those intervals specified in 1.1.3-1(3)(a), Part B of the Rules for the Survey and Construction of Steel Ships.</li> <li>(b) Intermediate Surveys are to be carried out at</li> </ul>	
	those intervals specified in 1.1.3-1(2), Part B of the Rules for the Survey and Construction of Steel Ships.	those intervals specified in 1.1.3-1(2), Part B of the Rules for the Survey and Construction of Steel Ships.	
	(c) Annual Surveys are to be carried out at those intervals specified in 1.1.3-1(1), Part B of the Rules for the Survey and Construction of Steel Ships.	<ul> <li>(c) Annual Surveys are to be carried out at those intervals specified in 1.1.3-1(1), Part B of the Rules for the Survey and Construction of Steel Ships.</li> </ul>	
	(d) Notwithstanding (a) to (c) above, Occasional Surveys are to be carried out independently of Special Surveys, Intermediate Surveys and Annual Surveys in cases. To implement the survey, in lieu of the traditional ordinary surveys where a surveyor is in attendance, the Society may approve the survey methods which it considers to be able to obtain information equivalent to that obtained through traditional ordinary surveys.	<ul> <li>(d) Notwithstanding (a) to (c) above, Occasional Surveys are to be carried out independently of Special Surveys, Intermediate Surveys and Annual Surveys in cases. To implement the survey, in lieu of the traditional ordinary surveys where a surveyor is in attendance, the Society may approve the survey methods which it considers to be able to obtain information equivalent to that obtained through traditional ordinary surveys.</li> </ul>	
	i) Any main parts of systems have been damaged, repaired or renewed.	i) Any main parts of systems have been damaged, repaired or renewed.	

	ii) Any systems are modified or altered.	ii) Any systems are modified or altered.
	iii) Any time considered necessary by the	iii) Any time considered necessary by the
	Society.	Society.
(e)	) The classed ships may be subject to Unscheduled	(e) The classed ships may be subject to Unscheduled
	Surveys when the confirmation of the status of	Surveys when the confirmation of the status of
	systems by survey is deemed necessary in cases	systems by survey is deemed necessary in cases
	where the Society considers the systems to be	where the Society considers the systems to be
	subject to 1.4-3 of the CONDITIONS OF	subject to 1.4-3 of the CONDITIONS OF
	SERVICE FOR CLASSIFICATION OF	SERVICE FOR CLASSIFICATION OF
	SHIPS AND REGISTRATION OF	SHIPS AND REGISTRATION OF
	INSTALLATIONS., Conditions of Service for	INSTALLATIONS.
	<b>Classification of Ships and Registration of</b>	
	Installations.	

#### Rules for High Speed Craft Part 2 Chapter 2 2.1.2-6

Correction	Present	Note
6 For crafts using low-flashpoint fuels, the operational	6 For crafts using low-flashpoint fuels, the operational	Wording correction
procedures and emergency procedures specified in <u>17.2.2</u> -3	procedures and emergency procedures specified in -3 and -4	to oralling correction
and <u>17.2.2</u> -4 of 17.2.2, Part GF of the Rules for the Survey	of 17.2.2, Part GF of the Rules for the Survey and	
and Construction of Steel Ships are to be submitted for	Construction of Steel Ships are to be submitted for Society	
Society approval.	approval.	

#### Rules for High Speed Craft Part 2 Chapter 2 2.2.1-4

Correction	Present	Note
4 For crafts using low-flashpoint fuels, the operational	4 For crafts using low-flashpoint fuels, the operational	Wording correction
procedures and emergency procedures stipulated in <u>17.2.2</u> -3	procedures and emergency procedures stipulated in -3 and -	
and <u>17.2.2</u> -4-of 17.2.2, Part GF of the Rules for the Survey	4 of 17.2.2, Part GF of the Rules for the Survey and	
and Construction of Steel Ships are to be submitted for	Construction of Steel Ships are to be submitted for Society	
Society approval.	approval.	

### Rules for High Speed Craft Part 6 Chapter 1 1.8.5

Correction	Present	Note
The sectional area of pillars is not to be less than the	The sectional area of pillars is not to be less than the	
value derived from the following formula.	value derived from the following formula.	
$\frac{21.54w}{\sigma_y - \frac{253.3}{E} \sigma_y^2 \left(\frac{l}{k_0}\right)^2} (cm^2)$	$\frac{21.54w}{\sigma_y - \frac{253.3}{E} \sigma_y^2 \left(\frac{l}{k_0}\right)^2} (Cm^2)$	
w : Deck load supported by pillars and is determined	w : Deck load supported by pillars and is determined	
by provisions given in 2.7, Part 5. (kN)	by provisions given in 2.7, Part 5. (kN)	
$\sigma_y$ : Yield strength or proof stress of the material used.	$\sigma_y$ : Yield strength or proof stress of the material used.	
$(N/mm^2)$	$(N/mm^2)$	
<i>l</i> : Distance from the lower end of pillar to the lower	<i>l</i> : Distance from the lower end of pillar to the lower	
side of beam or deck girder supported by the pillar.	side of beam or deck girder supported by the pillar.	
( <i>m</i> ) (See Fig. 5.2.4, Part 5)	( <i>m</i> ) (See Fig. 5.2.4)	Wording correction
$k_0$ : Minimum radius of gyration of the cross section	$k_0$ : Minimum radius of gyration of the cross section	
of pillars. ( <i>cm</i> )	of pillars. ( <i>cm</i> )	
$E$ : Elasticity constant of the material used. ( $N/mm^2$ )	$E$ : Elasticity constant of the material used. ( $N/mm^2$ )	

## Rules for the Survey and Construction of Passenger Ships Part 1 Chapter 1 1.1.5

Correction	Present	Note
Notwithstanding the requirements of the Rules, high	Notwithstanding the requirements of the Rules, high	Wording correction
speed crafts specified in 2.1.2, Part 1 of the Rules for the	speed crafts specified in 2.1.2, Part 1 of the Rules for the	therating correction
High Speed Craft and moored floating units specified in	High Speed Craft and moored floating units specified in	
1.2.3(4), Part P of the Rules for the Survey and	1.2.3(4), Part P of the Rules for the Survey and	
<b>Construction of Steel Ships</b> are to be in accordance with the	Construction of Steel Ships are to be in accordance with the	
requirements of the Rules for the High Speed Craft and Part	requirements of the Rules for the High Speed Craft and Part	
P of the Rules for the Survey and Construction of Steel	P of the Rules for the Survey and Construction of Steel	
Ships respectively.	Ships respectively.	

## Rules for the Survey and Construction of Passenger Ships Part 1 Chapter 1 1.2.5

Correction	Present	Note
1 For polar class ships in accordance with the provisions	1 For polar class ships in accordance with the provisions	Wording correction
of Chapter 1, Part I of the Rules for the Survey and	of Chapter 1, Part I of the Rules for the Survey and	
Construction of Steel Ships, by the provisions of 1.1.1-6,	Construction of Steel Ships, by the provisions of 1.1.1-6,	
Part 3, the following notation corresponding to the	Part 3, the following notation corresponding to the	
classification of ice strengthening specified in 1.2.2, Annex 1,	classification of ice strengthening specified in 1.2.2, Annex 1,	
of Part I of the Rules for the Survey and Construction of	Part I of the Rules for the Survey and Construction of Steel	
Steel Ships, is affixed to the Classification Characters.	Ships, is affixed to the Classification Characters.	
(1) <i>PC1: Polar Class 1</i> (abbreviated to <i>PC1</i> )	(1) <i>PC1: Polar Class 1</i> (abbreviated to <i>PC1</i> )	
(2) <i>PC2: Polar Class 2</i> (abbreviated to <i>PC2</i> )	(2) <i>PC2: Polar Class 2</i> (abbreviated to <i>PC2</i> )	
(3) <i>PC3: Polar Class 3</i> (abbreviated to <i>PC3</i> )	(3) <i>PC3: Polar Class 3</i> (abbreviated to <i>PC3</i> )	
(4) <i>PC4: Polar Class 4</i> (abbreviated to <i>PC4</i> )	(4) <i>PC4: Polar Class 4</i> (abbreviated to <i>PC4</i> )	
(5) <i>PC5: Polar Class 5</i> (abbreviated to <i>PC5</i> )	(5) <i>PC5: Polar Class 5</i> (abbreviated to <i>PC5</i> )	
(6) <i>PC6: Polar Class 6</i> (abbreviated to <i>PC6</i> )	(6) PC6: Polar Class 6 (abbreviated to PC6)	
(7) <i>PC7: Polar Class 7</i> (abbreviated to <i>PC7</i> )	(7) PC7: Polar Class 7 (abbreviated to PC7)	

#### Rules for the Survey and Construction of Passenger Ships Part 2 Chapter 1 1.1.7-3

Correction	Present	Note
3 If the survey to be carried out under the requirements	3 If the survey to be carried out under the requirements	Reference correction
of -2(2) above is a Special Survey, either the overdue Special	of -2(2) above is a Special Survey, either the overdue Special	
Survey or the next due Special Survey is to be carried out. In	Survey or the next due Special Survey is to be carried out. In	
such cases, the validity of the Classification Certificate is to	such cases, the validity of the Classification Certificate is to	
be in accordance with the requirements of 2.4.2-1.3-4,	be in accordance with the requirements of 2.4.2-3, Guidance	
Guidance for the Classification and Registry of Ships	for the Classification and Registry of Ships corresponding	
corresponding to the Special Survey to be carried out.	to the Special Survey to be carried out.	

#### Rules for the Survey and Construction of Passenger Ships Part 2 Chapter 2 2.1.2-4

Correction	Present	Note
4 For ships using low-flashpoint fuels, the operational		Wording correction
procedures and emergency procedures specified in -3 and -4	procedures and emergency procedures specified in -3 and -4	
of 17.2.217.2.2-3 and 17.2.2-4, Part GF of the Rules for the	of 17.2.2, Part GF of the Rules for the Survey and	
Survey and Construction of Steel Ships are to be submitted	Construction of Steel Ships are to be submitted for Society	
for Society approval.	approval.	

#### Rules for the Survey and Construction of Passenger Ships Part 3 Chapter 7 7.3.1-4

Correction	Present	Note
4 Air pipes terminating within a superstructure which		Reference correction
	are not fitted with watertight means of closure are to be	
considered as unprotected openings when applying 2.3.46-6,	considered as unprotected openings when applying 2.3.4-6,	
Part 4.	Part 4.	

### Rules for the Survey and Construction of Passenger Ships Part 5 Chapter 1 1.1.1-4

Correction	Present	Note
<ul> <li>4 In cases where plastic pipes (including vinyl pipes) are used when applying Chapter 12, Part D of Rules for the Survey and Construction of Steel Ships in accordance with -1(3), the following (1) to (3) are to be complied with:</li> <li>(1) In applying 12.1.6, Part D of Rules for the Survey and Construction of Steel Ships and Annex 12.1.6, Part D of Rules for the Survey and Construction of Steel Ships, the requirements regarding external pressures specified in 1.4.1-2(2) of the Annex), Annex 12.1.6, Part D of Rules for the Survey and Construction of Steel Ships are to be applied to any pipe installation required to remain operational in the case of flooding damage in accordance with 2.5.1, Part 12.1.6, Part 12.1.6, Part 12.1.6, Part 12.1.6, Part 20.1</li> </ul>	<ul> <li>4 In cases where plastic pipes (including vinyl pipes) are used when applying Chapter 12, Part D of Rules for the Survey and Construction of Steel Ships in accordance with -1(3), the following (1) to (3) are to be complied with:</li> <li>(1) In applying 12.1.6, Part D of Rules for the Survey and Construction of Steel Ships and Annex 12.1.6, Part D of Rules for the Survey and Construction of Steel Ships, the requirements regarding external pressures specified in 1.4.1-2(2) of the Annex are to be applied to any pipe installation required to remain operational in the case of flooding damage in accordance with 2.5.1, Part 4 of the Rules.</li> </ul>	Reference correction
<ul> <li>Part 4 of the Rules.</li> <li>(2) In applying 12.1.6, Part D of Rules for the Survey and Construction of Steel Ships and Annex 12.1.6, Part D of Rules for the Survey and Construction of Steel Ships, the requirements regarding fire endurance specified in 1.5.1-1-of the Annex, Annex 12.1.6, Part D of Rules for the Survey and Construction of Steel Ships are to be applied to any pipe installation used for Safe Return to Port purposes (SOLAS II-2, Reg.21.4). Such installations can be considered to remain operational after a fire casualty if the plastic pipes and fittings have been tested to L1 standard.</li> </ul>	(2) In applying 12.1.6, Part D of Rules for the Survey and Construction of Steel Ships and Annex 12.1.6, Part D of Rules for the Survey and Construction of Steel Ships, the requirements regarding fire endurance specified in 1.5.1-1 of the Annex are to be applied to any pipe installation used for Safe Return to Port purposes (SOLAS II-2, Reg.21.4). Such installations can be considered to remain operational after a fire casualty if the plastic pipes and fittings have been tested to L1 standard.	
<ul> <li>(3) In applying 12.1.6, Part D of Rules for the Survey and Construction of Steel Ships and Annex 12.1.6, Part D of Rules for the Survey and Construction of Steel Ships, the following note is added to Table 1 of the Annex 12.1.6, Part D of Rules for the Survey and Construction of Steel Ships and is to be</li> </ul>	(3) In applying 12.1.6, Part D of Rules for the Survey and Construction of Steel Ships and Annex 12.1.6, Part D of Rules for the Survey and Construction of Steel Ships, the following note is added to Table 1 of the Annex and is to be considered in the application of the table:	

considered in the application of the table:		
For passenger ships subject to Reg. 21.4 (Safe Return	For passenger ships subject to Reg. 21.4 (Safe Return	
to Port) of SOLAS II-2, plastic pipes for services	to Port) of SOLAS II-2, plastic pipes for services	
required to remain operative in the part of the ship not	required to remain operative in the part of the ship not	
affected by the casualty thresholds (such as systems	affected by the casualty thresholds (such as systems	
intended to support safe areas) are to be considered	intended to support safe areas) are to be considered	
essential services. In accordance with MSC Circular	essential services. In accordance with MSC Circular	
MSC.1/Circ.1369 (interpretation 12), plastic piping	MSC.1/Circ.1369 (interpretation 12), plastic piping	
can be considered to remain operational after a fire	can be considered to remain operational after a fire	
casualty if the plastic pipes and fittings have been	casualty if the plastic pipes and fittings have been	
tested to L1 standard for Safe Return to Port purposes.	tested to L1 standard for Safe Return to Port purposes.	

### Rules for the Survey and Construction of Inland Waterway Ships Part 2 Chapter 2 2.1.2-5

Correction	Present	Note
6 For ships using low-flashpoint fuels, the operational	6 For ships using low-flashpoint fuels, the operational	Wording correction
procedures and emergency procedures specified in 17.2.2-3	procedures and emergency procedures specified in -3 and -4	to oralling correction
and <u>17.2.2</u> -4-of 17.2.2, Part GF of the Rules for the Survey	of 17.2.2, Part GF of the Rules for the Survey and	
and Construction of Steel Ships are to be submitted for	<b>Construction of Steel Ships</b> are to be submitted for Society	
Society approval.	approval.	

### Rules for the Survey and Construction of Inland Waterway Ships Part 2 Chapter 2 2.2.1-4

Correction	Present	Note
4 For ships using low-flashpoint fuels, the operational		Wording correction
procedures and emergency procedures stipulated in <u>17.2.2</u> -3	procedures and emergency procedures stipulated in -3 and -4	
and <u>17.2.2</u> -4-of 17.2.2, Part GF of the Rules for the Survey	of 17.2.2, Part GF of the Rules for the Survey and	
and Construction of Steel Ships are to be submitted for	Construction of Steel Ships are to be submitted for Society	
Society approval.	approval.	

## Rules for the Survey and Construction of Inland Waterway Ships Part 2 Chapter 5 5.2.5-1

	Correction		Present	Note
1	At Special Surveys, thickness measurements are to be	1	At Special Surveys, thickness measurements are to be	Wording correction
carried	d out in accordance with (1) through (4) below.	carried	l out in accordance with (1) through (4) below.	
(1)	Thickness measurements are to be carried out using	(1)	Thickness measurements are to be carried out using	
	appropriate ultra-sonic gauging machines or other		appropriate ultra-sonic gauging machines or other	
	approved means. The Surveyor may request that the		approved means. The Surveyor may request that the	
	accuracy of the equipment be demonstrated.		accuracy of the equipment be demonstrated.	
(2)	Thickness measurements are to be carried out within	(2)	Thickness measurements are to be carried out within	
	12 months prior to completion of the survey in		12 months prior to completion of the survey in	
	question under the attendance of the Surveyor by the		question under the attendance of the Surveyor by the	
	firm approved by the Society under the "Rules for		firm approved by the Society under the "Rules for	
	Approval of <u>ManufacturesManufacturers</u> and		Approval of Manufactures and Service Suppliers"	
	Service Suppliers" or equivalent firm. The surveyor		or equivalent firm. The surveyor may request to have	
	may request to have the measurements taken again to		the measurements taken again to ensure acceptable	
	ensure acceptable accuracy.		accuracy.	
(3)	Additional thickness measurements are to be carried	(3)	Additional thickness measurements are to be carried	
	out before the completion of the survey.		out before the completion of the survey.	
(4)	A thickness measurement record is to be prepared and	(4)	A thickness measurement record is to be prepared and	
	submitted to the Society.		submitted to the Society.	

# Rules for the Survey and Construction of Inland Waterway Ships Part 2 Chapter 8 Table 2.8.1-1

	Correction	Present	Note
Table 2	2.8.1-1 Approval Procedure of Preventive Mainten	nance System for Oil Lubricated Propeller Shafts (PSCM)	Wording correction
Item		Procedures	there are a second seco
1 General		entative maintenance of propeller shafts. This system permits the shipowners to ying out lubricating oil analysis regularly and diagnosing the lubricating condition	
2	(1) The executive management (hereinafter referred to as "mana	agement") responsible for adopting the preventive maintenance system according	
Application	<ul><li>(a) Management's policy for implementing the preventive m</li><li>(b) Procedures and personnel responsible for sampling oil, m</li></ul>	he maintenance manual specifying at least the following (a) to (f). naintenance system nonitoring parameters such as oil analysis results and recording the necessary data ontrolling the analytical testing machines (or testing laboratory) and the measuring	
	<ul><li>(d) Procedures and personnel responsible for review of each</li><li>(e) Procedures and personnel responsible for handling any ai</li><li>(f) Procedures and personnel responsible for ensuring that p</li></ul>	parameter monitored and diagnosing the lubricating condition thereby bnormalities found (including those for reporting to the Society) proper maintenance is carried out according to the maintenance manual	
	<ul><li>documents on board the ship and the other copy of the appro</li><li>(3) The application is to be submitted within 6 <i>months</i> from the</li></ul>	icant after review and approval. Management is to keep one copy of the approved ved documents either on hand or at the shipowner's office. date of completion of the Classification Survey or the previous Ordinary Survey e waived in cases where supplementary documentation confirming the soundness	
3 Approval and Notation		s approval on items such as the management system, the maintenance procedures m and abnormal conditions) of oil analysis results. The Society assigns approved	

#### Editorial Correction for Technical Rules and Guidance

4 Approval	(1) Management system				
Conditions	(a) Management is to state clearly that it will take responsibility for proper implementation of the preventive maintenance of the related part				
	according to the manual	and familiarize the crew concerned with the procedures.			
	(b) Management is to verify	that parameters such as oil analysis results are all within	their limits and to take suitable measures as necessary.		
	Management is to report	to the Society immediately where any abnormality is foun	ıd.		
	(c) Management is to verify	that suitable maintenance is carried out according to the n	nanual.		
	(d) The items monitored or reviewed according to the manual are to be recorded.				
	(2) Maintenance procedures				
	(a) Oil sampling for analytic with the following.	al testing is to be carried out regularly at the intervals of	at least 6 months and the procedures are in accordance		
		ried out at sea as much as possible. The sampling oil quan ning. For example, the air purge pipe at the pump exit or system.			
	ii) Where the sampling	can only be conducted at port, the sampling is to be carri	ed out after sufficient circulation of the oil with an oil		
	pump if one is available, and according to the method in i) above. Otherwise, the oil is to be sampled from a few points at different				
	levels and all the samples are mixed together as the testing sample.				
	(b) Monitoring and recording of each parameter is to be properly carried out and the following data is to be recorded at each sampling.				
	i) Temperature of the circulation oil				
	ii) Temperature of the a	ft stern tube bearing			
		e oil name, service hours, total oil quantity and oil consur			
	(c) The testing machines and	l measuring devices for monitoring the parameters are to h	nave their accuracy		
	(3) Criteria for parameters				
	Management is to determine the criteria for each parameter for the ship based on the reference standards below and by taking into account its				
	experience and knowledge.				
	(a) Analytical items and methods:				
	i) Analytical items and methods: Refer to Table 1 as a standard. However, alternative analytical items and methods can be adopted instead				
	when deemed appropriate by the Society.				
	ii) Standard criteria: To be within the max. values specified in Table 1 counting from the values of the new oil				
	iii) Alarm values: To be less than double the standard criteria (where any parameter exceeds the alarm value, the testing oil is to be re-				
		sis for all the items is to be carried out immediately)			
	(b) Lubricating oil consumption	-			
	(c) Temperature at aft. stern				
	(d) Wear down for oil lubric	ated bearing: 0.3 mm or less			
		Table 1 Standard criteria (Refer	rence)		
	analytical items	max. values	analytical methods		

#### Editorial Correction for Technical Rules and Guidance

	Fe (ppm)	50	ICP (SOAP)			
	Sn (ppm)	20	ICP (SOAP)			
	Pb (ppm)	20	ICP (SOAP)			
	Na (ppm)	80	ICP (SOAP)			
	IR Oxidation @ 5.85 µm	10	FT-IR			
	(Abs. unit/cm)					
	Separated Water (%)	1.0	Visual (24 settling hours)			
After	(1) The parameters at least follo	owing (a) to (e) are to be monitored and recorded onboard the s	hip in accordance with the approved manual, and			
Approval	÷	he propeller shafts is to be diagnosed thereby.				
		and analysis is to be carried out regularly at intervals not exceed	ding 6 months, with at least the following i) to iv)			
	being analyzed each time	e:				
	i) water content;					
	ii) salinity (sodium);					
		and bearing metal particles; and				
	iv) oxidation of oil.					
		ecking of lubricating oil water content.				
	(c) Lubricating oil consump	tion rate				
	(d) Bearing temperature*1	ler shaft at the stern tube bearing				
		and, management is to report it to the Society as soon as possible	and withdraw the shaft for a thorough examination			
			and withdraw the shart for a thorough examination			
	<ul><li>or carry out maintenance to the shaft as necessary.</li><li>(3) Management is to maintain onboard records of the analysis data in 4.(2)(b) above after every analysis of the sample oil. In the documents,</li></ul>					
	management's opinion, such as on the necessity for withdrawing the shaft, is to be included.					
	<ul><li>(4) The Society will carry out general examinations on the related shafting parts and review each record of parameters monitored at the ship's</li></ul>					
	periodical surveys to verify that appropriate maintenance is carried out in compliance with the approved manual, and notify the ship's					
		ary maintenance. Where any abnormality or improper main				
		pply for an Ordinary Survey of the shaft.				
6	(1) Where the following (a) to (c	) is applicable, the Society may cancel the ship's approval to ado	pt the preventive maintenance system for propeller			
Cancellation		ociety is to notify the ship's management of the cancellation, a	and the ship is to be carried out Ordinary Survey			
of Approval	immediately in accordance v					
		nduct is found regarding entries in the records such as those for				
		the Society that proper maintenance is not carried out according				
		ship management company has changed, or cancellation of t	he approval to adopt the preventive maintenance			
	system has been request	ed by the ship's management.				

Notes	
*1: In the cases of azimuth thrusters which use roller bearings as the bearings for propeller shafts, however, the vibrations of the power transmission systems	
in the propulsion systems or the Fe-density of the lubricating oil in the azimuth thruster casings may be acceptable. In such cases, the instruments	
specified in (1) or (2) are used, the data and the result of the analysis are to be evaluated prior to the survey and are to be retained on board at all times.	
However, the following requirements specified in (3) are to be satisfied.	
(1) A vibration measurement system to measure vibration of power transmission system in the azimuth thrusters complying with the following (a) to	
(c). Where the system is fixed type, the environmental tests specified in 18.7.1(1), Part D of the Rules for the Survey and Construction of	
Steel Ships are to be carried out.	
(a) The measurement is to be carried out regularly at intervals not exceeding 3 months.	
(b) Measurement points and the relevant data are to be in accordance with those described in the guidance for measurement in the management manual concerning the vibration measurement system.	
(c) A trend display and frequency analysis of the measurement data is to be provided.	
(2) A Fe-density measurement system of lubricating oil in the azimuth thruster casings complying with the following (a) to (c). Where the system is	
fixed type, the environmental tests specified in 18.7.1(1), Part D of the Rules for the Survey and Construction of Steel Ships are to be carried out.	
(a) Sampling is to be carried out regularly at intervals not exceeding 3 months.	
<ul><li>(b) The measurement data is to be the amount of Fe per hour, considering the change of new lubricating oil. A trend display of the data is to be provided.</li></ul>	
(c) Sampling is to be carried out when the azimuth thrusters are operating at sea as far as possible. When the sampling can only be conducted at	
port, the sampling is to be carried out within 30 minutes after said thrusters stop.	

# Rules for the Survey and Construction of Inland Waterway Ships Part 5 Chapter 14 14.1.2

Correction	Present	Note
Notwithstanding the provisions in <u>14.1.1</u> -1 to <u>14.1.1</u> -3	Notwithstanding the provisions in -1 to -3 of 14.1.1,	Wording correction
of 14.1.1, for the unmanned barges the following requirements	for the unmanned barges the following requirements are	wording correction
are applied:	applied:	
(1) The number of anchors may be one of the unit weight	(1) The number of anchors may be one of the unit weight	
in Table 5.14.1.	in Table 5.14.1.	
(2) The length of chain cables may be half of length in	(2) The length of chain cables may be half of length in	
Table 5.14.1.	Table 5.14.1.	
(3) Except where specified in (1) and (2), the Table	(3) Except where specified in (1) and (2), the Table	
5.14.1, and Table 5.14.2 or 14.1.5 is applied.	5.14.1, and Table 5.14.2 or 14.1.5 is applied.	

## Rules for the Survey and Construction of Inland Waterway Ships Chapter 1 1.2.9-2

Correction	Present	Note
2 In an <i>FRP</i> ships having a discontinuous exposed deck (e.g. a stepped freeboard deck), the freeboard deck is to be	2 In an <i>FRP</i> ships having a discontinuous exposed deck (e.g. a stepped freeboard deck), the freeboard deck is to be	Reference correction
determined as follows.	determined as follows.	
<ul> <li>(1) Where a recess in the freeboard deck extends to the sides of the ship and is in excess of 1 <i>m</i> in length, the lowest line of the exposed deck and the continuation of that line parallel to the upper part of the deck is taken as the freeboard deck.</li> <li>(2) Where a recess in the freeboard deck does not extend to the sides of the ship or is not in excess of 1 <i>m</i> in</li> </ul>	<ol> <li>Where a recess in the freeboard deck extends to the sides of the ship and is in excess of 1 <i>m</i> in length, the lowest line of the exposed deck and the continuation of that line parallel to the upper part of the deck is taken as the freeboard deck.</li> <li>Where a recess in the freeboard deck does not extend to the sides of the ship or is not in excess of 1 <i>m</i> in</li> </ol>	
length, the upper part of the deck is taken as the freeboard deck.	length, the upper part of the deck is taken as the freeboard deck.	
(3) Recesses not extending from side to side in the deck designated as the freeboard deck in accordance with the provisions of -32.1.15-3, Chapter 2, Part A of the Rules for the Survey and Construction of Steel Ships below the exposed deck may be disregarded, provided all openings in the exposed deck are fitted with weathertight closing appliances.	(3) Recesses not extending from side to side in the deck designated as the freeboard deck in accordance with the provisions of -3 below the exposed deck may be disregarded, provided all openings in the exposed deck are fitted with weathertight closing appliances.	

## Rules for the Survey and Construction of Inland Waterway Ships Chapter 20 20.1.1-1

Correction	Present	Note
1 Load lines of <i>FRP</i> Ships, $L_f$ of which is 24 <i>m</i> and over	1 Load lines of <i>FRP</i> Ships, $L_f$ of which is 24 <i>m</i> and over	Wording correction
are to be in accordance with the requirements in Part $V_{\overline{2}}$ of	are to be in accordance with the requirements in Part V, the	
the Rules for the Survey and Construction of Steel Ships.	Rules for the Survey and Construction of Steel Ships.	

## Guidance for the Audit and Registration of Ship Security Management Systems Part 3 Chapter 3 3.6

Correction	Present	Note
For the commencement of lay-up, the ship owner is required	For the commencement of lay-up, the ship owner is required	Wording correction
to submit the following documents to the nearest Society's	to submit the following documents to the nearest Society's	working correction
local office. However, the document specified in (1) has	local office. However, the document specified in (1) has	
been submitted under the provisions of B1.1.8, Part B,	been submitted under the provisions of B1.1.8, Part B,	
Guidance for the Survey and Construction of Steel Ships	Guidance for the Survey and Construction of Steel Ships	
or 5.5, Guidance for the Audit and Registration of	or 5.5, Guidance for the Audit and Registration of Ship	
ShipSafety Management Systems, the submission of the	Management Systems, the submission of the document	
document specified (1) is not required.	specified (1) is not required.	
(1) Application for the Ship Laid-up	(1) Application for the Ship Laid-up	
(2) A copy of the Certificate of acceptance of lay-up	(2) A copy of the Certificate of acceptance of lay-up	
written by the Authority	written by the Authority	

## Guidance for the survey and construction of steel ships Part A A2 A2.1.15-1

Correction	Present	Note
1 "Adequate width" specified in 2.1.15-3, Part A of the	1 "Adequate width" specified in 2.1.15-3, Part A of the	Reference correction
<b>Rules</b> is to be determined by taking into account the ship's	Rules is to be determined by taking into account the ship's	
construction, and operation, and at the minimum, is to	construction, and operation, and at the minimum, is to	
accommodate the passages specified in 23.714.13, Part C of	accommodate the passages specified in 23.7, Part C of the	
the Rules.	Rules.	

### Guidance for the survey and construction of steel ships Part B B1 B1.1.3-3

Correction		Present		Note
<b>B of the F</b> (1) Fi	ne Occasional Surveys specified in 1.1.3-3(5), Part Rules are as specified below: ire-extinguishing mediums and deep-fat cooking quipment	<b>3</b> <b>B of th</b> (1)	The Occasional Surveys specified in 1.1.3-3(5), Part e Rules are as specified below: Fire-extinguishing mediums and deep-fat cooking equipment	Wording correction
de ar 10 co th	lew installations of fire-extinguishing mediums and eep-fat cooking equipment on or after 1 July 2002 re to comply with the requirements of <b>10.4.1-3</b> or <b>0.6.3, Part R of the Rules</b> , as applicable. Deep-fat poking equipment is to be confirmed at the time of he installation.		New installations of fire-extinguishing mediums and deep-fat cooking equipment on or after 1 July 2002 are to comply with the requirements of 10.4.1-3 or 10.6.3, Part R of the Rules, as applicable. Deep-fat cooking equipment is to be confirmed at the time of the installation.	
Folio ch to re P	Cargo hoses or cargo hoses installed on board ships carrying quefied gases in bulk and ships carrying dangerous hemicals in bulk on or after 1 July 2002, a survey is be carried out to verify compliance with the equirements of 5.11.7, Part N of the Rules or 5.7.3, Part S of the Rules, as applicable, at the time of the installation.	(2)	Cargo hoses For cargo hoses installed on board ships carrying liquefied gases in bulk and ships carrying dangerous chemicals in bulk on or after 1 July 2002, a survey is to be carried out to verify compliance with the requirements of 5.11.7, Part N of the Rules or 5.7.3, Part S of the Rules, as applicable, at the time of the installation.	
1. be 20 cc of th	or ice class ships with IA Super and IA defined in .2.5-2, Part A of the Rules, which had been at the eginning stage of construction before 1 September 003, a survey is to be carried out to verify ompliance with the requirements of 8.4.2-2, Part I f the Rules by 1 January in the year 20 years since he year the ship was delivered.	(3)	For ice class ships with IA Super and IA defined in 1.2.5-2, Part A of the Rules, which had been at the beginning stage of construction before 1 September 2003, a survey is to be carried out to verify compliance with the requirements of 8.4.2-2, Part I of the Rules by 1 January in the year 20 years since the year the ship was delivered.	
de Fe cc W	additional requirement for fittings on exposed fore eck or bulk carriers, general dry cargo ships (excluding ontainer vessels, vehicle carriers, Ro-Ro ships and roodchip carriers), and combination carriers (e.g. DBO ships, Ore/Oil Carriers, etc.) of length ( $L_C$ ) 100 a or more (where, $L_C$ is the length of ship specified in	(4)	Additional requirement for fittings on exposed fore deck For bulk carriers, general dry cargo ships (excluding container vessels, vehicle carriers, Ro-Ro ships and woodchip carriers), and combination carriers (e.g. OBO ships, Ore/Oil Carriers, etc.) of length ( $L_C$ ) 100 <i>m</i> or more (where, $L_C$ is the length of ship specified in	

 1.4.3.1-1, Part 1, Part C of the Rules) which have	1.4.3.1-1, Part 1, Part C of the Rules) which have	
been contracted for construction prior to 1 January	been contracted for construction prior to 1 January	
2004, a survey is to be carried out to verify	2004, a survey is to be carried out to verify	
compliance with the requirements specified in (a) and	compliance with the requirements specified in (a) and	
implementation schemes specified in (b).	implementation schemes specified in (b).	
(a) Requirements	(a) Requirements	
(i) 20.2.10, Part C of the Rules applies to	(i) 20.2.10, Part C of the Rules applies to	
hatches on the exposed deck giving access to	hatches on the exposed deck giving access to	
spaces forward of the collision bulkhead that	spaces forward of the collision bulkhead that	
also extend aft over this line.	also extend aft over this line.	
(ii) 23.6.8, Part C of the Rules applies to	(ii) 23.6.8, Part C of the Rules applies to	
ventilator pipes and their closing devices on	ventilator pipes and their closing devices on	
the exposed deck serving spaces forward of	the exposed deck serving spaces forward of	
the collision bulkhead that also extend aft	the collision bulkhead that also extend aft	
over this line.	over this line.	
(iii) 13.6.5, Part D of the Rules applies to air	(iii) 13.6.5, Part D of the Rules applies to air	
pipes and their closing devices on the	pipes and their closing devices on the	
exposed deck serving spaces forward of the	exposed deck serving spaces forward of the	
collision bulkhead that also extend aft over	collision bulkhead that also extend aft over	
this line.	this line.	
(b) Implementation scheme	(b) Implementation scheme	
(i) For ships which will be 15 years of age or	(i) For ships which will be 15 <i>years</i> of age or	
more on 1 January 2004: by the due date of	more on 1 January 2004: by the due date of	
the first intermediate or special survey after		
that date	the first intermediate or special survey after that date	
(ii) For ships which will be 10 years of age or	(ii) For ships which will be 10 years of age or	
more but less than 15 years of age on 1	more but less than 15 years of age on 1	
January 2004: by the due date of the first	January 2004: by the due date of the first	
special survey after that date	special survey after that date	
(iii) For ships which will be less than 10 years of	(iii) For ships which will be less than 10 years of	
age on 1 January 2004: by the date on which	age on 1 January 2004: by the date on which	
the ship reaches 10 years of age (Where the	the ship reaches 10 years of age (Where the	
due date of the first intermediate or special	due date of the first intermediate or special	
survey is not until after the ship reaches 10	survey is not until after the ship reaches 10	

	years of age, then the due date of the first		years of age, then the due date of the first	
	intermediate or special survey)		intermediate or special survey)	
(5)	(Deleted)	(5)	(Deleted)	
(6)	Secondary means of pressure/vacuum relief for	(6)	Secondary means of pressure/vacuum relief for	
	controlled tank venting system for small chemical		controlled tank venting system for small chemical	
	tanker		tanker	
	For ships carrying dangerous chemicals in bulk of less		For ships carrying dangerous chemicals in bulk of less	
	than 500 gross tonnage which had been at the		than 500 gross tonnage which had been at the	
	beginning stage of construction before 1 July 2002, a		beginning stage of construction before 1 July 2002, a	
	survey is to be carried out to verify compliance with		survey is to be carried out to verify compliance with	
	the requirements of <b>8.2.3</b> , <b>Part S of the Rules</b> by the		the requirements of <b>8.2.3</b> , <b>Part S of the Rules</b> by the	
	date of 1 January 2007.		date of 1 January 2007.	
(7)	With respect to the provisions of <b>8.1.2-3</b> , <b>Part I of the</b>	(7)	With respect to the provisions of <b>8.1.2-3</b> , <b>Part I of the</b>	
(7)	<b>Rules</b> , ships built before 1 July 2007 and whose	$(\prime)$	<b>Rules</b> , ships built before 1 July 2007 and whose	
	summer load line is located at a higher level than the		summer load line is located at a higher level than the	
			6	
	<i>UIWL</i> , are to be provided with a warning triangle and		<i>UIWL</i> , are to be provided with a warning triangle and	
	with an ice class draught mark at the maximum		with an ice class draught mark at the maximum	
	permissible ice class draught amidships by the date of		permissible ice class draught amidships by the date of	
	the first scheduled dry docking after 1 July 2007. In		the first scheduled dry docking after 1 July 2007. In	
	such cases, the engine output and the maximum and		such cases, the engine output and the maximum and	
	minimum ice class draught fore, amidships and aft are		minimum ice class draught fore, amidships and aft are	
	to be indicated in the classification certificate.		to be indicated in the classification certificate.	
(8)	Safety practice of fixed carbon dioxide fire-	(8)	Safety practice of fixed carbon dioxide fire-	
	extinguishing systems		extinguishing systems	
	For fixed carbon dioxide fire-extinguishing systems		For fixed carbon dioxide fire-extinguishing systems	
	for the protection of machinery spaces and cargo		for the protection of machinery spaces and cargo	
	pump-rooms installed on ships which had been at the		pump-rooms installed on ships which had been at the	
	beginning stage of construction before 1 October		beginning stage of construction before 1 October	
	1994, a survey is to be carried out to verify		1994, a survey is to be carried out to verify	
	compliance with the requirements of 25.2.2-2(1) and		compliance with the requirements of 25.2.2-2(1) and	
	(2), Part R of the Rules by the date of the first		(2), Part R of the Rules by the date of the first	
	scheduled dry-docking after 1 January 2010.		scheduled dry-docking after 1 January 2010.	
(9)	Emergency towing procedures	(9)	Emergency towing procedures	
	For cargo ships not less than 500 gross tonnage		For cargo ships not less than 500 gross tonnage	
	Tor cargo sinps not ress man 500 gross tonnage		i or cargo sinps not ress than 500 gross tonnage	

engaged on international voyages which had been at the beginning stage of construction prior to 1 January 2010, a survey is to be carried out by 1 January 2012 to verify that the emergency towing procedures specified in 14.5.3, Part 1, Part C of the Rules or 23.3, Part CS of the Rules are provided.

- (10) In the case of ships not less than 500 gross tonnage engaged on international voyages which had been at the beginning stage of their construction before 1 January 2010 and have closed vehicle and Ro-Ro spaces equipped with fixed water pressure spraying systems, a survey is to be conducted to verify that the measures specified in 20.5.1-5, Part R of the Rules have been carried out by the first survey after 1 January 2010.
- (11) Carriage of dangerous goods

For cargo ships with cargo spaces intended for the carriage of packaged dangerous goods which are not less than 500 gross tonnage and had been at the beginning stage of construction on or after 1 September 1984 but before 1 January 2010 or which are less than 500 gross tonnage and had been at the beginning stage of construction on or after 1 February 1992 but before 1 January 2011, a survey is to be carried out to verify compliance with the requirement specified in **19.3**, **Part R of the Rules** in accordance with **Tables 19R19.1** and **19R19.3**, by the first special survey of the ship after 1 January 2011. However, the following provisions may apply:

(a) Cargo ships not less than 500 gross tonnage which had been at the beginning stage of construction on or after 1 September 1984 but before 1 July 1986 need not comply with 19.3.3, Part R of the Rules provided that they comply engaged on international voyages which had been at the beginning stage of construction prior to 1 January 2010, a survey is to be carried out by 1 January 2012 to verify that the emergency towing procedures specified in 14.5.3, Part 1, Part C of the Rules or 23.3, Part CS of the Rules are provided.

- (10) In the case of ships not less than 500 gross tonnage engaged on international voyages which had been at the beginning stage of their construction before 1 January 2010 and have closed vehicle and Ro-Ro spaces equipped with fixed water pressure spraying systems, a survey is to be conducted to verify that the measures specified in 20.5.1-5, Part R of the Rules have been carried out by the first survey after 1 January 2010.
- (11) Carriage of dangerous goods

For cargo ships with cargo spaces intended for the carriage of packaged dangerous goods which are not less than 500 gross tonnage and had been at the beginning stage of construction on or after 1 September 1984 but before 1 January 2010 or which are less than 500 gross tonnage and had been at the beginning stage of construction on or after 1 February 1992 but before 1 January 2011, a survey is to be carried out to verify compliance with the requirement specified in **19.3**, **Part R of the Rules** in accordance with **Tables 19.1** and **19.3**, by the first special survey of the ship after 1 January 2011. However, the following provisions may apply:

(a) Cargo ships not less than 500 gross tonnage which had been at the beginning stage of construction on or after 1 September 1984 but before 1 July 1986 need not comply with 19.3.3, with the requirements which were in effect when such ships were constructed.

- (b) Cargo ships not less than 500 gross tonnage which had been at the beginning stage of construction on or after 1 September 1984 but before 1 July 1998 need not comply with 19.3.10-1 and 19.3.10-2, Part R of the Rules.
- (c) Cargo ships less than 500 gross tonnage which had been at the beginning stage of construction on or after 1 February 1992 but before 1 July 1998 need not comply with 19.3.10-1 and 19.3.10-2, Part R of the Rules.
- (d) Cargo ships not less than 500 gross tonnage which had been at the beginning stage of construction on or after 1 February 1992 but before 1 July 2002 need not comply with 19.3.3, Part R of the Rules provided that they comply with the requirements which were in effect when such ships were constructed.
- (e) Cargo ships not less than 500 gross tonnage which had been at the beginning stage of construction on or after 1 September 1984 but before 1 July 2002 need not comply with 19.3.1, 19.3.5, 19.3.6 and 19.3.9, Part R of the Rules provided that they comply with the requirements which were in effect when such ships were constructed.
- (12) Portable instruments for measuring oxygen concentrations

For tankers which had been at the beginning stage of construction prior to 1 January 2012, a survey is to be carried out by the first survey on of after 1 January 2012 to verify that the portable instruments for measuring oxygen concentrations specified in **Part R of the Rules** provided that they comply with the requirements which were in effect when such ships were constructed.

- (b) Cargo ships not less than 500 gross tonnage which had been at the beginning stage of construction on or after 1 September 1984 but before 1 July 1998 need not comply with 19.3.10-1 and 19.3.10-2, Part R of the Rules.
- (c) Cargo ships less than 500 gross tonnage which had been at the beginning stage of construction on or after 1 February 1992 but before 1 July 1998 need not comply with 19.3.10-1 and 19.3.10-2, Part R of the Rules.
- (d) Cargo ships not less than 500 gross tonnage which had been at the beginning stage of construction on or after 1 February 1992 but before 1 July 2002 need not comply with 19.3.3, Part R of the Rules provided that they comply with the requirements which were in effect when such ships were constructed.
- (e) Cargo ships not less than 500 gross tonnage which had been at the beginning stage of construction on or after 1 September 1984 but before 1 July 2002 need not comply with 19.3.1, 19.3.5, 19.3.6 and 19.3.9, Part R of the Rules provided that they comply with the requirements which were in effect when such ships were constructed.
- (12) Portable instruments for measuring oxygen concentrations
  For tankers which had been at the beginning stage of construction prior to 1 January 2012, a survey is to be carried out by the first survey on of after 1 January 2012 to verify that the portable instruments for

4.5.7(1), Part R of the Rules are equipped. measuring oxygen concentrations specified in	
(13) Devices to prevent the passage of flame (flame 4.5.7(1), Part R of the Rules are equipped.	
screen, flame arrester, detonation flame arrester and (13) Devices to prevent the passage of flame (flame screen,	
high velocity device) flame arrester, detonation flame arrester and high	
For devices to prevent the passage of flame required velocity device)	
to ships which had been at the beginning stage of For devices to prevent the passage of flame required	
construction before 1 January 2013 and for ships to ships which had been at the beginning stage of	
which carry cargos shown as apparatus groups IIB, construction before 1 January 2013 and for ships	
IIC or no apparatus group assigned in the column $i$ " which carry cargos shown as apparatus groups IIB	
of <b>Table S17.1, Part S of the Rules</b> , a survey is to be IIC or no apparatus group assigned in the column <i>i</i> '	
carried out to verify that the devices are in compliance of <b>Table S17.1</b> , <b>Part S of the Rules</b> , a survey is to be	
with the requirements of <b>7.4.2-2</b> , <b>Chapter 7</b> , <b>Part 6</b> carried out to verify that the devices are in compliance	
of the Guidance for the Approval and Type with the requirements of 7.4.2-2, Chapter 7, Part 6	
Approval of Materials and Equipment for Marine of the Guidance for the Approval and Type	
use <u>Use</u> by the first scheduled dry-docking after 1 Approval of Materials and Equipment for Marine	
January 2013. use by the first scheduled dry-docking after 1 January	
(14) Means of recharging breathing apparatus cylinders 2013.	
and spare cylinders (14) Means of recharging breathing apparatus cylinders	
For ships at the beginning stage of construction prior and spare cylinders	
to 1 July 2014, a survey is to be carried out by the first For ships at the beginning stage of construction prior	
survey on or after 1 July 2014 to verify compliance to 1 July 2014, a survey is to be carried out by the first	
with the requirements of 15.2.3, Part R of the Rules. survey on or after 1 July 2014 to verify compliance	
(15) Fire-fighter's communication with the requirements of 15.2.3, Part R of the Rules.	
For ships at the beginning stage of construction prior (15) Fire-fighter's communication	
to 1 July 2014, a survey is to be carried out by the first For ships at the beginning stage of construction prior	
survey on or after 1 July 2018 to verify compliance to 1 July 2014, a survey is to be carried out by the first	
with the requirements of 10.10.4, Part R of the survey on or after 1 July 2018 to verify compliance	
Rules. with the requirements of 10.10.4, Part R of the	
(16) Fire-fighter's outfits Rules.	
For ships equipped with self-contained compressed (16) Fire-fighter's outfits	
air breathing apparatus of fire-fighter's outfits which For ships equipped with self-contained compressed	
had been at the beginning stage of construction before air breathing apparatus of fire-fighter's outfits which	
1 July 2014, a survey is to be carried out to verify that had been at the beginning stage of construction before	
such apparatuses comply with the requirements of 1 July 2014, a survey is to be carried out to verify that	

	23.2.1-2(2), Part R of the Rules by the first survey		such apparatuses comply with the requirements of	
	on or after 1 July 2019.		23.2.1-2(2), Part R of the Rules by the first survey	
(17)	Stability instruments for ships carrying dangerous		on or after 1 July 2019.	
	chemicals in bulk	(17)	Stability instruments for ships carrying dangerous	
	For ships carrying dangerous chemicals in bulk which		chemicals in bulk	
	had been at the beginning stage of construction before		For ships carrying dangerous chemicals in bulk which	
	1 January 2016, a survey is to be carried out to verify		had been at the beginning stage of construction before	
	compliance with the requirements of 2.2.3, Part S of		1 January 2016, a survey is to be carried out to verify	
	the Rules by the first scheduled special survey on or		compliance with the requirements of 2.2.3, Part S of	
	after 1 January 2016 but not later than 1 January 2021.		the Rules by the first scheduled special survey on or	
(18)	Stability instruments for ships carrying liquefied		after 1 January 2016 but not later than 1 January 2021.	
	gases in bulk	(18)	Stability instruments for ships carrying liquefied	
	For ships carrying liquefied gases in bulk which had		gases in bulk	
	been at the beginning stage of construction before 1		For ships carrying liquefied gases in bulk which had	
	July 2016, a survey is to be carried out to verify		been at the beginning stage of construction before 1	
	compliance with the requirements of 2.2.3, Part N of		July 2016, a survey is to be carried out to verify	
	the Rules by the first scheduled special survey on or		compliance with the requirements of 2.2.3, Part N of	
	after 1 July 2016 but not later than 1 July 2021.		the Rules by the first scheduled special survey on or	
(19)	Portable gas detector		after 1 July 2016 but not later than 1 July 2021.	
	For vehicle carriers defined in 3.2.54, Part R for the	(19)	Portable gas detector	
	carriage of motor vehicles with compressed natural		For vehicle carriers defined in 3.2.54, Part R for the	
	gas in their tanks for their own propulsion and/or		carriage of motor vehicles with compressed natural	
	motor vehicles with compressed hydrogen in their		gas in their tanks for their own propulsion and/or	
	tanks for their own propulsion which had been at the		motor vehicles with compressed hydrogen in their	
	beginning stage of construction before 1 January		tanks for their own propulsion which had been at the	
	2016, a survey is to be carried out to verify		beginning stage of construction before 1 January	
	compliance with the requirements of 20A.5, Part R		2016, a survey is to be carried out to verify	
	of the Rules by the first survey on or after 1 January		compliance with the requirements of 20A.5, Part R	
	2016.		of the Rules by the first survey on or after 1 January	
(20)	Portable atmosphere testing instruments for enclosed		2016.	
	spaces	(20)	Portable atmosphere testing instruments for enclosed	
	For ships of not less than 500 gross tonnage engaged		spaces	
	on international voyages which had been at the		For ships of not less than 500 gross tonnage engaged	
	beginning stage of construction before 1 July 2016, it		on international voyages which had been at the	

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ſ		is to be verified that portable atmosphere testing		beginning stage of construction before 1 July 2016, it	
		instruments complying with 1.5.1, Part B of the		is to be verified that portable atmosphere testing	
		Rules are provided on board by the first survey on or		instruments complying with 1.5.1, Part B of the	
		after 1 July 2016.		Rules are provided on board by the first survey on or	
	(21)	Ships operating in polar waters		after 1 July 2016.	
		For ships operating in polar waters defined in 1.1.1-2,	(21)	Ships operating in polar waters	
		Part I of the Rules at the beginning stage of		For ships operating in polar waters defined in <b>1.1.1-2</b> ,	
		construction before 1 January 2017, a survey is to be		Part I of the Rules at the beginning stage of	
		carried out to verify compliance with the		construction before 1 January 2017, a survey is to be	
		requirements of Chapter 1 (except for 1.1.1-4, 1.1.1-		carried out to verify compliance with the	
		5, 1.1.2, 1.1.3 and 1.1.4-2) to Chapter 7, Part I of the		requirements of Chapter 1 (except for 1.1.1-4, 1.1.1-	
		Rules by the first Intermediate Survey or Special		5, 1.1.2, 1.1.3 and 1.1.4-2) to Chapter 7, Part I of the	
		Survey after 1 January 2018, whichever occurs first.		Rules by the first Intermediate Survey or Special	
	(22)	Ships using low-flashpoint fuels		Survey after 1 January 2018, whichever occurs first.	
		(a) For ships that fall under the following i) or ii), a			
		survey is to be carried out to verify compliance	(22)	Ships using low-flashpoint fuels	
		with the requirements of Part GF of the Rules		(a) For ships that fall under the following i) or ii), a	
		before using low-flashpoint fuels or undertaking		survey is to be carried out to verify compliance	
		to use different low-flashpoint fuels than		with the requirements of Part GF of the Rules	
		specified:		before using low-flashpoint fuels or undertaking	
		i) Ships which convert to using low-flashpoint		to use different low-flashpoint fuels than	
		fuels on or after 1 January 2017; or		specified:	
		ii) Ships which, on or after 1 January 2017,		i) Ships which convert to using low-flashpoint	
		undertake to use low-flashpoint fuels		fuels on or after 1 January 2017; or	
		different from those which they were		ii) Ships which, on or after 1 January 2017,	
		originally approved to use before 1 January		undertake to use low-flashpoint fuels	
		2017.		different from those which they were	
		(b) For ships that fall under the following i) or ii), a		originally approved to use before 1 January	
		survey is to be carried out to verify compliance		2017.	
		with the requirements of GF11.3.1-1, GF11.3.1-		(b) For ships that fall under the following i) or ii), a	
		2, GF12.5.2-2 and GF15.10.1, Part GF of the		survey is to be carried out to verify compliance	
		Guidance before using low-flashpoint fuels or		with the requirements of GF11.3.1-1, GF11.3.1-	
		undertaking to use different low-flashpoint fuels		2, GF12.5.2-2 and GF15.10.1, Part GF of the	
		than specified:		Guidance before using low-flashpoint fuels or	

- i) Ships which convert to using low-flashpoint fuels on or after 1 July 2019; or
- Ships which, on or after 1 July 2019, undertake to use low-flashpoint fuels different from those which they were originally approved to use before 1 July 2019.
- (c) For ships that fall under the following i) or ii), a survey is to be carried out to verify compliance with the requirements of 11.8.1, Part GF of the Rules and GF11.3.1-2, Part GF of the Guidance before using low-flashpoint fuels or undertaking to use different low-flashpoint fuels than specified:
  - i) Ships which convert to using low-flashpoint fuels on or after 1 January 2024; or
  - Ships which, on or after 1 January 2024, undertake to use low-flashpoint fuels different from those which they were originally approved to use before 1 January 2024.
- (23) Inspection/survey plans for cargo containment systems for ships carrying liquefied gases in bulk (including programs of non-destructive testing for periodical surveys for independent tanks of Type *B* and programs of examination and testing of cargo containment systems for periodical surveys for membrane and semi-membrane tanks)

For ships carrying liquefied gases in bulk which are at the beginning stage of construction on or after 1 July 2016, a survey is to be carried out to verify that the inspection/survey plans for cargo containment systems specified in **4.3.6**, **Part N of the Rules** are provided on board by the first survey on or after 1 July undertaking to use different low-flashpoint fuels than specified:

- i) Ships which convert to using low-flashpoint fuels on or after 1 July 2019; or
- ii) Ships which, on or after 1 July 2019, undertake to use low-flashpoint fuels different from those which they were originally approved to use before 1 July 2019.
- (c) For ships that fall under the following i) or ii), a survey is to be carried out to verify compliance with the requirements of 11.8.1, Part GF of the Rules and GF11.3.1-2, Part GF of the Guidance before using low-flashpoint fuels or undertaking to use different low-flashpoint fuels than specified:
  - i) Ships which convert to using low-flashpoint fuels on or after 1 January 2024; or
  - ii) Ships which, on or after 1 January 2024, undertake to use low-flashpoint fuels different from those which they were originally approved to use before 1 January 2024.
- (23) Inspection/survey plans for cargo containment systems for ships carrying liquefied gases in bulk (including programs of non-destructive testing for periodical surveys for independent tanks of Type *B* and programs of examination and testing of cargo containment systems for periodical surveys for membrane and semi-membrane tanks) For ships carrying liquefied gases in bulk which are at the baginning store of construction on or often 1 July
  - the beginning stage of construction on or after 1 July 2016, a survey is to be carried out to verify that the inspection/survey plans for cargo containment

	2018.		systems specified in 4.3.6, Part N of the Rules are	
(24)	Inspection/survey plans for liquefied gas fuel		provided on board by the first survey on or after 1 July	
	containment systems for ships using low-flashpoint		2018.	
	fuels (including programs of non-destructive testing	(24)	Inspection/survey plans for liquefied gas fuel	
	for periodical surveys for independent fuel storage		containment systems for ships using low-flashpoint	
	tanks of Type $B$ and programs of examination and		fuels (including programs of non-destructive testing	
	testing of liquefied gas fuel containment systems for		for periodical surveys for independent fuel storage	
	periodical surveys for membrane tanks)		tanks of Type B and programs of examination and	
	For ships which fall under the following, a survey is		testing of liquefied gas fuel containment systems for	
	to be carried out to verify that the inspection/survey		periodical surveys for membrane tanks)	
	plans for liquefied gas fuel containment systems		For ships which fall under the following, a survey is	
	specified in 6.4.1-8, Part GF of the Rules are		to be carried out to verify that the inspection/survey	
	provided on board by the first survey on or after 1 July		plans for liquefied gas fuel containment systems	
	2018.		specified in 6.4.1-8, Part GF of the Rules are	
	(a) Ships using low-flashpoint fuels for which the		provided on board by the first survey on or after 1 July	
	building contract is placed on or after 1 January		2018.	
	2017; or		(a) Ships using low-flashpoint fuels for which the	
	(b) In the absence of a building contract, ships using		building contract is placed on or after 1 January	
	low-flashpoint fuels which are at the beginning		2017; or	
	stage of construction on or after 1 July 2017; or		(b) In the absence of a building contract, ships using	
	(c) Ships using low-flashpoint fuels for which		low-flashpoint fuels which are at the beginning	
	delivery is on or after 1 January 2021; or		stage of construction on or after 1 July 2017; or	
	(d) Ships using low-flashpoint fuels which convert to		(c) Ships using low-flashpoint fuels for which	
	using low-flashpoint fuels on or after 1 January		delivery is on or after 1 January 2021; or	
	2017; or		(d) Ships using low-flashpoint fuels which convert to	
	(e) Ships using low-flashpoint fuels which, on or		using low-flashpoint fuels on or after 1 January	
	after 1 January 2017, undertake to use low-		2017; or	
	flashpoint fuels different from those which it was		(e) Ships using low-flashpoint fuels which, on or	
	originally approved to use before 1 January 2017.		after 1 January 2017, undertake to use low-	
			flashpoint fuels different from those which it was	
			originally approved to use before 1 January 2017.	

## Guidance for the survey and construction of steel ships Part B B1 B1.3.1-3

Correction	Present	Note
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).	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).	Wording correction
(1) Hatch covers located forward of 0.25 $L_1$ from the forward end of $L_1$ of bulk carriers which are contracted for construction on or after 1 July 1998 and prior to 1 January 2004 and are at a beginning stage of construction prior to 1 January 2005 Renewal thickness ( <i>t</i> 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. $L_1$ is the length of ship specified in 2.1.2, <b>Part A of the Rules</b> or 0.97 <i>times</i> the length of ship	(1) Hatch covers located forward of $0.25 L_1$ from the forward end of $L_1$ of bulk carriers which are contracted for construction on or after 1 July 1998 and prior to 1 January 2004 and are at a beginning stage of construction prior to 1 January 2005 Renewal thickness ( <i>t</i> 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. $L_1$ is the length of ship specified in 2.1.2, <b>Part A of the Rules</b> or 0.97 <i>times</i> the length of ship	
<ul> <li>on the designed maximum load line, whichever is smaller (m).</li> <li>trenewal = tas-built -tc + 0.5 (mm)</li> <li>tas-built: as built thickness (mm)</li> <li>tc: Corrosion addition specified in Table B1.3.1-1(a)</li> <li>(2) Hatch covers and hatch coamings of bulk carriers not complying with the provisions of Part CSR-B</li> <li>or Part CSR-B&amp;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 carries 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</li> <li>Renewal thickness (trenewal) 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.</li> </ul>	<ul> <li>on the designed maximum load line, whichever is smaller (m).</li> <li>trenewal = tas-built -tc + 0.5 (mm)</li> <li>tas-built: as built thickness (mm)</li> <li>tc: Corrosion addition specified in Table B1.3.1-1(a)</li> <li>(2) Hatch covers and hatch coamings of bulk carriers not complying with the provisions of Part CSR-B or CSR-B&amp;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 carries 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</li> <li>Renewal thickness (trenewal) 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.</li> </ul>	

(3)	trenewal = $t_{as-built} - t_c + 0.5 \ (mm)$ tas-built: as built thickness $(mm)$ tc: Corrosion addition specified in <b>Table B1.3.1-1(b)</b> Hatch covers and hatch coamings of ships other than bulk carriers that have the application for Classification Survey during Construction submitted to the Society on or after 10 June 2005 Renewal thickness ( $t_{renewal}$ ) 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. $t_{renewal} = t_{as-built} - t_c + 0.5 \ (mm)$ tas-built: as built thickness ( $mm$ ) tc: Corrosion addition specified in <b>Table B1.3.1-1(c</b> ) Where corrosion addition $t_c$ is 1.0 ( $mm$ ), renewal thickness may be given by the formula	(3)	$t_{\text{renewal}} = t_{\text{as-built}} - t_{\text{c}} + 0.5 \ (mm)$ $t_{\text{as-built}}: \text{ as built thickness } (mm)$ $t_{\text{c}}: \text{ Corrosion addition specified in Table B1.3.1-1(b)}$ Hatch covers and hatch coamings of ships other than bulk carriers that have the application for Classification Survey during Construction submitted to the Society on or after 10 June 2005 Renewal thickness ( <i>t</i> <sub>renewal</sub> ) 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. $t_{\text{renewal}} = t_{\text{as-built}} - t_{\text{c}} + 0.5 \ (mm)$ $t_{\text{as-built}}: \text{ as built thickness } (mm)$ $t_{\text{c}}: \text{ Corrosion addition specified in Table B1.3.1-1(c)}$ Where corrosion addition $t_{\text{c}}$ is 1.0 $(mm)$ , renewal thickness may be given by the formula	
(4)	$t_{\text{renewal}} = t_{\text{as-built}} - t_c (mm)$ Hatch covers and hatch coamings of ships complying with the requirements in 14.6, Part 1, Part C of the <b>Rules</b> or 19.2, Part CS of the Rules, and ships which are contracted for construction on or after 1 July 2012 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. $t_{\text{renewal}} = t_{\text{as-built}} - t_c + 0.5 (mm)$	(4)	$t_{\text{renewal}} = t_{\text{as-built}} - t_c (mm)$ Hatch covers and hatch coamings of ships complying with the requirements in 14.6, Part 1, Part C of the <b>Rules</b> or 19.2, Part CS of the Rules, and ships which are contracted for construction on or after 1 July 2012 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. $t_{\text{renewal}} = t_{\text{as-built}} - t_c + 0.5 (mm)$	
	tas-built: as built thickness ( <i>mm</i> ) tc: Corrosion addition specified in <b>Table B1.3.1-1(d</b> ) Where corrosion addition $t_c$ is 1.0 ( <i>mm</i> ), renewal thickness may be given by the formula $t_{renewal} = t_{as-built} - t_c$ ( <i>mm</i> )		tas-built: as built thickness ( <i>mm</i> ) tc: Corrosion addition specified in <b>Table B1.3.1-1(d</b> ) Where corrosion addition $t_c$ is 1.0 ( <i>mm</i> ), renewal thickness may be given by the formula $t_{renewal} = t_{as-built} - t_c$ ( <i>mm</i> )	

## Guidance for the survey and construction of steel ships Part B B1 B1.4.2-6

Correction			Present	Note
6	In oil tankers, bulk carriers and ships carrying	6	In oil tankers, bulk carriers and ships carrying	Wording correction
0	ous chemicals in bulk with integral tanks, the following	0	ous chemicals in bulk with integral tanks, the following	5
	ents from (1) to (9) are to be kept on board the ship to		ents from (1) to (9) are to be kept on board the ship to	
	lily available for the Surveyor. In general dry cargo		dily available for the Surveyor. In general dry cargo	
	f not less than 500 gross tonnage, at least (1) and (3) of	-	f not less than 500 gross tonnage, at least (1) and (3) of	
the foll	owing documents are to be kept on board the ship.	the foll	owing documents are to be kept on board the ship.	
(1)	Records on structural surveys	(1)	Records on structural surveys	
(2)	Condition evaluation report. Where the language used	(2)	Condition evaluation report. Where the language used	
	in preparation of the report is not English, a		in preparation of the report is not English, a	
	translation into English is to be included. (and see the		translation into English is to be included. (and see the	
	requirement in B5.2.6-6(6) for bulk carriers built		requirement in B5.2.6-6(6) for bulk carriers built	
	under Part CSR-B or <u>Part CSR-B&amp;T</u> of the Rules		under Part CSR-B or CSR-B&T of the Rules and all	
	and all oil tankers)		oil tankers)	
(3)	Thickness measurement reports	(3)	Thickness measurement reports	
(4)	Main structural plans for hull (for ships built under	(4)	Main structural plans for hull (for ships built under	
	Part CSR-B, <u>Part</u> CSR-T or <u>Part</u> CSR-B&T of the		Part CSR-B, CSR-T or CSR-B&T of the Rules,	
	Rules, these plans are to include both as-built and		these plans are to include both as-built and renewal	
	renewal thickness. Any thickness for voluntary		thickness. Any thickness for voluntary additions is	
	additions is also to be clearly indicated on the plans.		also to be clearly indicated on the plans. A midship	
	A midship section plan to be supplied on board the		section plan to be supplied on board the ship is to	
	ship is to include the minimum allowable hull girder		include the minimum allowable hull girder sectional	
	sectional properties for transverse sections in all cargo		properties for transverse sections in all cargo holds of	
	holds of bulk carriers or cargo tanks of double hull		bulk carriers or cargo tanks of double hull oil tankers	
	oil tankers specified in either 1.4 Section 2 Chapter		specified in either 1.4 Section 2 Chapter 13, Part	
	13, Part CSR-B, Section 12, Part CSR-T or 2.2,		CSR-B, Section 12, Part CSR-T or 2.2, Section 2,	
	Section 2, Chapter 13, Part 1, Part CSR-B&T of		Chapter 13, Part 1, Part CSR-B&T of the Rules.)	
	the Rules.)			
(5)	Cargo and ballast history	(5)	Cargo and ballast history	
(6)	Previous repair history	(6)	Previous repair history	
(7)	Records of inspections by ship's personnel with	(7)	Records of inspections by ship's personnel with	
	reference to structural deterioration in general, the		reference to structural deterioration in general, the	
	leakage in bulkheads and piping and the condition of		leakage in bulkheads and piping and the condition of	

coating or corrosion prevention system, if any	coating or corrosion prevention system, if any	
(8) In oil tankers and ships carrying dangerous chemicals	(8) In oil tankers and ships carrying dangerous chemicals	
in bulk, extent of use of inert gas plant and tank	in bulk, extent of use of inert gas plant and tank	
cleaning procedures	cleaning procedures	
(9) Any other information that will help identify Suspect	(9) Any other information that will help identify Suspect	
Areas requiring inspection	Areas requiring inspection	
However, ships which do not engage in international	However, ships which do not engage in international	
voyages and are classed for restricted service such as having	voyages and are classed for restricted service such as having	
class notation "Coasting Service", "Smooth Water Service",	class notation "Coasting Service", "Smooth Water Service",	
etc., as specified in 1.4.2-2, Part B of the Rules need not keep	etc., as specified in 1.4.2-2, Part B of the Rules need not keep	
onboard the document of (2) above.	onboard the document of (2) above.	

### Guidance for the survey and construction of steel ships Part B B1 B1.4.2-12

Correction	Present	Note
<b>12</b> For bulk carriers as defined in 1.3.1(13), Part B of the	12 For bulk carriers as defined in 1.3.1(13), Part B of the	Reference correction
Rules and bulk carriers as defined in An1.2.1.2(1), Annex 1.1,	Rules and bulk carriers as defined in An1.1.2(1), Annex 1.1,	
Part 2-2, Part C of the Rules which are at the beginning stage	Part 2-2, Part C of the Rules which are at the beginning stage	
of construction on or after 1 July 2006, the Surveyor is to	of construction on or after 1 July 2006, the Surveyor is to	
confirm that the hatch covers on these ships are maintained in	confirm that the hatch covers on these ships are maintained in	
accordance with the resolution MSC.169(79) "Standards for	accordance with the resolution MSC.169(79) "Standards for	
owner's inspection and maintenance of bulk carrier hatch	owner's inspection and maintenance of bulk carrier hatch	
covers" by investigation of inspection records.	covers" by investigation of inspection records.	
Notwithstanding the above, this requirement may be waived	Notwithstanding the above, this requirement may be waived	
for bulk carriers of less than 500 gross tonnage and those not	for bulk carriers of less than 500 gross tonnage and those not	
engaged on international voyages with the Class Notation	engaged on international voyages with the Class Notation	
"Coasting Service", "Smooth Water Service."	"Coasting Service", "Smooth Water Service."	

## Guidance for the survey and construction of steel ships Part B B2 B2.1.6-7

Correction	Present	Note
7 "Noise survey report" in 2.1.6-1(2)(r), Part B of the	7 "Noise survey report" in 2.1.6-1(2)(r), Part B of the	Wording correction
Rules refers to the report in An4.2, Annex 2.3.1-2	Rules refers to the report in An4.2, Annex 2.3.1-2	thorang correction
"PROCEDURES FOR ON BOARD NOISE	<b>"PROCEDURES FOR ON BOARD NOISE</b>	
MEASUREMENTS"- of the Rules. It is recommended that	MEASUREMENTS". It is recommended that documents	
documents containing the noise exposure level determined in	containing the noise exposure level determined in accordance	
accordance with An3.3.6, Annex 2.3.1-2 "PROCEDURES	with An3.3.6, Annex 2.3.1-2 "PROCEDURES FOR ON	
FOR ON BOARD NOISE MEASUREMENTS" of the	BOARD NOISE MEASUREMENTS" are attached to the	
<u><b>Rules</b></u> are attached to the "Noise survey report".	"Noise survey report".	

## Guidance for the survey and construction of steel ships Part B B2 B2.3.1-1

Correction			Present	Note
1	"Tests where deemed necessary by the Society" in	1	"Tests where deemed necessary by the Society" in	Wording correction
2.3.1-	2.3.1-1(13), Part B of the Rules, refers to the tests and		(13), Part B of the Rules, refers to the tests and	
exami	nations mentioned in the following $(1)$ to $(8)$ .	examir	nations mentioned in the following $(1)$ to $(8)$ .	
(1)	For ships having multiple propellers or multiple main	(1)	For ships having multiple propellers or multiple main	
	engines, sea trials are to be carried out under the		engines, sea trials are to be carried out under the	
	assumption that one propeller or engine is inoperable		assumption that one propeller or engine is inoperable	
	due to failure to confirm that the ship can be		due to failure to confirm that the ship can be	
	manoeuvred properly in that condition.		manoeuvred properly in that condition.	
(2)	For propulsion gears where the total face width (in	(2)	For propulsion gears where the total face width (in	
	case of double helical gears, the central gap is		case of double helical gears, the central gap is	
	included) exceed 300 mm or where the ratio of the		included) exceed 300 mm or where the ratio of the	
	total face width to pitch circle diameter of the pinion		total face width to pitch circle diameter of the pinion	
	exceeds 2, the contact marking of the teeth is to be		exceeds 2, the contact marking of the teeth is to be	
	verified by coating thinly and uniformly with suitable		verified by coating thinly and uniformly with suitable	
(2)	paint on the tooth flank.	(2)	paint on the tooth flank.	
(3)	When the ship is provided with supplementary means for manoeuvring or stopping, performance tests of	(3)	When the ship is provided with supplementary means for manoeuvring or stopping, performance tests of	
	such means are to be carried out.		such means are to be carried out.	
(4)	Open-up inspection of cylinders may be required after	(4)	Open-up inspection of cylinders may be required after	
	sea trials when considered necessary by the Society.	(-)	sea trials when considered necessary by the Society.	
(5)		(5)		
(5)	Sea trials for ships with electrical propulsion plants	(5)	Sea trials for ships with electrical propulsion plants	

are to be carried out in accordance with the test procedures deemed appropriate by the Society. For the test of ship manoeuvrability, refer to the test procedures shown in Annex 2.3.1-1, Part B of the <u>Rules</u>.

- (6) In addition to the tests specified in 2.3.1-1(5), Part B of the Rules, the Society may require other tests found in *JIS F* 0801 "Test Code of Propelling Machinery at Sea Trials" or other documents considered equivalent thereto.
- (7) For ships carrying liquefied gases in bulk, ships carrying dangerous chemicals in bulk and other ships whose length is not less than 100 *m*, sea trials to ascertain initial turning ability, yaw, and course keeping abilities are to be carried out. However, this test need not be carried out for ships whose manoeuvring characteristics are confirmed by sufficient data on the ship and test type, as well as information from sources such as the sea trials of sister ships and model tests. For other ships, this test is recommended.
- (8) For ships having exhaust gas recirculation systems, running tests of engines are to be carried out with exhaust gas recirculation systems in operation, and the satisfactory operation of the engine and exhaust gas recirculation system is to be confirmed.

are to be carried out in accordance with the test procedures deemed appropriate by the Society. For the test of ship manoeuvrability, refer to the test procedures shown in **Annex 2.3.1-1**.

- (6) In addition to the tests specified in 2.3.1-1(5), Part B of the Rules, the Society may require other tests found in *JIS F* 0801 "Test Code of Propelling Machinery at Sea Trials" or other documents considered equivalent thereto.
- (7) For ships carrying liquefied gases in bulk, ships carrying dangerous chemicals in bulk and other ships whose length is not less than 100 *m*, sea trials to ascertain initial turning ability, yaw, and course keeping abilities are to be carried out. However, this test need not be carried out for ships whose manoeuvring characteristics are confirmed by sufficient data on the ship and test type, as well as information from sources such as the sea trials of sister ships and model tests. For other ships, this test is recommended.
- (8) For ships having exhaust gas recirculation systems, running tests of engines are to be carried out with exhaust gas recirculation systems in operation, and the satisfactory operation of the engine and exhaust gas recirculation system is to be confirmed.

#### Guidance for the survey and construction of steel ships Part B B2 B2.3.2-3

	Correction		Present	Note
3	The booklet required in 2.3.2, Part B of the Rules is	3	The booklet required in 2.3.2, Part B of the Rules is	Wording correction
to be a	as follows according to the specifics of the ship.	to be a	s follows according to the specifics of the ship.	working correction
(1)	For ships complying with Part U of the Rules, the	(1)	For ships complying with Part U of the Rules, the	
	booklet is to be prepared in accordance with Annex		booklet is to be prepared in accordance with Annex	
	U1.2.1 "GUIDANCE FOR STABILITY		U1.2.1 "GUIDANCE FOR STABILITY	
	INFORMATION FOR MASTER", Part U of the		<b>INFORMATION FOR MASTER".</b>	
	<u>Guidance</u> .			
(2)	For ships other than (1) above that comply with the	(2)	For ships other than (1) above that comply with the	
	International Convention on Load Lines, 1966		International Convention on Load Lines, 1966	
	(referred to as "ILLC" in this Part), the booklet is to		(referred to as "ILLC" in this Part), the booklet is to	
	be prepared in the form approved by the Society.		be prepared in the form approved by the Society.	
(3)	For ships other than (1) and (2) above, the booklet is	(3)	For ships other than (1) and (2) above, the booklet is	
	to be prepared as deemed appropriate by the Society.		to be prepared as deemed appropriate by the Society.	

#### Guidance for the survey and construction of steel ships Part B B2 B2.5.1-4

Correction	Present	Note
4 In applying 2.5.1-1, Part B of the Rules, the tightness		Wording correction
of such boundaries is to be verified by the tests stipulated in	of such boundaries is to be verified by the tests stipulated in	
Annex 2.1.5 "Testing Procedures of Watertight	Annex 2.1.5 "Testing Procedures of Watertight	
Compartments" of the Rules in cases where any	Compartments" in cases where any modifications or repairs	
modifications or repairs have been carried out which affects	have been carried out which affects the tightness of the	
the tightness of the watertight boundary.	watertight boundary.	

#### Guidance for the survey and construction of steel ships Part B B3 B3.2.1-5

Correction	Present	Note
5 "Noise survey report" in item 11, Table B3.1 in 3.2.1,	5 "Noise survey report" in item 11, Table B3.1 in 3.2.1,	Reference correction
Part B of the Rules refers to the report in An4.2, Annex	Part B of the Rules refers to the report in An4.2, Annex 2.1.4	
2. <u>3.</u> 1.4 <u>-2</u> "PROCEDURES FOR ON BOARD NOISE	<b>"PROCEDURES FOR ON BOARD NOISE</b>	
MEASUREMENTS" of the Rules.	MEASUREMENTS".	

## Guidance for the survey and construction of steel ships Part B B3 B3.2.2-5

Correction	Present	Note
5 The general examination of "bow doors, inner doors,	5 The general examination of "bow doors, inner doors,	Reference correction
side shell doors and stern doors (hereinafter collectively	side shell doors and stern doors (hereinafter collectively	
referred to as "door(s)")" stipulated in item 21 of <b>Table B3.2</b> ,	referred to as "door(s)")" stipulated in item 21 of <b>Table B3.2</b> ,	
<b>Part B of the Rules</b> is to confirm that the items specified (1)	<b>Part B of the Rules</b> is to confirm that the items specified (1)	
to (7) below are in good condition. Non-destructive testing	to (7) below are in good condition. Non-destructive testing	
may be required when deemed necessary by the Surveyor as a	may be required when deemed necessary by the Surveyor as a	
consequence of the examination specified in Table $3B3.2$ , Part B of the Rules.	consequence of the examination specified in Table 3.2, Part B of the Rules.	
(1) Structural members such as plating and stiffeners and	(1) Structural members such as plating and stiffeners and	
related welded parts of the door(s)	related welded parts of the door(s)	
(2) Structural members such as plating and stiffeners of	-	
the surrounding hull structure	the surrounding hull structure	
(3) Items (a) to (h) below for the door(s)	(3) Items (a) to (h) below for the door(s)	
(a) Securing, supporting and locking devices	(a) Securing, supporting and locking devices	
(b) Hinges, bearings and thrust bearings	(b) Hinges, bearings and thrust bearings	
(c) Interlock systems for opening/closing systems	(c) Interlock systems for opening/closing systems	
and the securing and locking devices	and the securing and locking devices	
(d) Sealing arrangements	(d) Sealing arrangements	
(e) Electric devices for operating	(e) Electric devices for operating	
(f) Drainage systems and arrangements	(f) Drainage systems and arrangements	
(g) Hydraulic devices	(g) Hydraulic devices	
(h) Any other devices which are required for the ship	(h) Any other devices which are required for the ship	
in accordance with 14.10, Part 1, Part C of the	in accordance with 14.10, Part 1, Part C of the	
Rules and Chapter 21, Part CS of the Rules	Rules and Chapter 21, Part CS of the Rules	
(4) In addition to (3) above, clearance measurements for	(4) In addition to (3) above, clearance measurements for	
the hinges, bearings and thrust bearings of doors are	the hinges, bearings and thrust bearings of doors are	
to be carried out in cases where no dismantling is	to be carried out in cases where no dismantling is	
required. If the results of the function test are not	required. If the results of the function test are not	
satisfactory, dismantling may be required to measure	satisfactory, dismantling may be required to measure	
clearances in cases where deemed necessary by the	clearances in cases where deemed necessary by the	
Surveyor. If dismantling is carried out, a visual	Surveyor. If dismantling is carried out, a visual	
examination of hinge pins and bearings together with	examination of hinge pins and bearings together with	

<ul> <li>non-destructive testing of the hinge pin is to be carried out. Clearance measurements of securing, supporting and locking devices are to be taken in cases where indicated in the Operating and Maintenance Manual.</li> <li>(5) Items (a) to (f) below for indication / monitoring systems, where fitted.</li> <li>(a) Visible indication and audible alarms (hereinafter referred to as "indication and alarm system") at the navigation bridge panel and on the operating panel</li> <li>(b) Lamp test function at the navigation bridge panel and on the operating panel</li> <li>(c) Mode selecting function that allows selection between "harbour" and "sea voyage"</li> <li>(d) Power supply for the indication and alarm system</li> <li>(f) Any other systems which are required for the ship in accordance with 14.10, Part 1, Part C of the Rules and Chapter 21, Part CS of the Rules</li> <li>(6) Where fitted, vater leakage detection systems are to be tested including the proper audible alarms on the navigation bridge monitor and on the engine control room panel, according to the procedures specified in the Operating and Maintenance Manual.</li> <li>(7) Where fitted, television surveillance systems are to be tested including the proper audible alarms on the navigation bridge monitor and on the engine control room monitor.</li> </ul>					
<ul> <li>and locking devices are to be taken in cases where indicated in the Operating and Maintenance Manual.</li> <li>(5) Items (a) to (f) below for indication / monitoring systems, where fitted.</li> <li>(a) Visible indication and audible alarms (hereinafter referred to as "indication and alarm system") at the navigation bridge panel and on the operating panel</li> <li>(b) Lamp test function at the navigation bridge panel and on the operating panel</li> <li>(c) Mode selecting function that allows selection between "harbour" and "sea voyage"</li> <li>(d) Power supply for the indication and alarm system</li> <li>(f) Any other systems which are required for the ship in accordance with 14.10, Part 1, Part C of the Rules and Chapter 21, Part CS of the Rules</li> <li>(6) Where fitted, water leakage detection systems are to be tested including the proper audible alarms on the navigation bridge panel and on the engine control room panel, according to the procedures specified in the Operating and Maintenance Manual.</li> <li>(7) Where fitted, television surveillance systems are to be tested including the proper indications on the navigation bridge monitor and on the engine control room panel, according to the procedures specified in the Operating and Maintenance Manual.</li> <li>(7) Where fitted, television surveillance systems are to be tested including the proper indications on the navigation bridge monitor and on the engine control room panel, according to the procedures specified in the Operating and Maintenance Manual.</li> <li>(7) Where fitted, television surveillance systems are to be tested including the proper indications on the navigation bridge monitor and on the engine control room panel, according to the procedures specified in the Operating and Maintenance Manual.</li> <li>(7) Where fitted, television surveillance systems are to be tested including the proper indications on the navigation bridge monitor and on the engine control room panel, according to the procedures specified in the Operating and Main</li></ul>		non-destructive testing of the hinge pin is to be carried		non-destructive testing of the hinge pin is to be carried	
<ul> <li>indicated in the Operating and Maintenance Manual.</li> <li>(5) Items (a) to (f) below for indication / monitoring systems, where fitted.</li> <li>(a) Visible indication and audible alarms (hereinafter referred to as "indication and alarm system") at the navigation bridge panel and on the operating panel</li> <li>(b) Lamp test function at the navigation bridge panel and on the operating panel</li> <li>(c) Mode selecting function that allows selection between "harbour" and "sea voyage"</li> <li>(d) Power supply for the indication and alarm system</li> <li>(e) Sensor for the indication and alarm system</li> <li>(f) Any other systems which are required for the ship in accordance with 14.10, Part 1, Part C of the Rules and Chapter 21, Part CS of the Rules</li> <li>(6) Where fitted, water leakage detection systems are to be tested including the proper audible alarms on the navigation bridge panel and on the engine control room panel, according to the procedures specified in the Operating and Maintenance Manual.</li> <li>(7) Where fitted, television surveillance systems are to be tested including the proper indications on the navigation bridge monitor and on the engine control room panel, according to the procedures specified in the Operating and Maintenance Manual.</li> <li>(7) Where fitted, television surveillance systems are to be tested including the proper indications on the navigation bridge monitor and on the engine control</li> </ul>					
<ul> <li>(5) Items (a) to (f) below for indication / monitoring systems, where fitted.</li> <li>(a) Visible indication and audible alarms (hereinafter referred to as "indication and alarm system") at the navigation bridge panel and on the operating panel</li> <li>(b) Lamp test function at the navigation bridge panel and on the operating panel</li> <li>(c) Mode selecting function that allows selection between "harbour" and "sea voyage"</li> <li>(d) Power supply for the indication and alarm system</li> <li>(e) Sensor for the indication and alarm system</li> <li>(f) My other systems which are required for the ship in accordance with 14.10, Part 1, Part C of the Rules and Chapter 21, Part CS of the Rules</li> <li>(f) Where fitted, water leakage detection systems are to be tested including the proper audible alarms on the navigation bridge panel and on the engine control room panel, according to the procedures specified in the Operating and Maintenance Manual.</li> <li>(7) Where fitted, television surveillance systems are to be tested including the proper indications on the navigation bridge monitor and on the engine control room panel, according to the procedures specified in the Operating and Maintenance Manual.</li> <li>(7) Where fitted, television surveillance systems are to be tested including the proper indications on the navigation bridge monitor and on the engine control room panel, according to the procedures specified in the Operating and Maintenance Manual.</li> <li>(7) Where fitted, television surveillance systems are to be tested including the proper indications on the navigation bridge monitor and on the engine control</li> </ul>		and locking devices are to be taken in cases where		and locking devices are to be taken in cases where	
<ul> <li>systems, where fitted.</li> <li>(a) Visible indication and audible alarms (hereinafter referred to as "indication and alarm system") at the navigation bridge panel and on the operating panel</li> <li>(b) Lamp test function at the navigation bridge panel and on the operating function that allows selection between "harbour" and "sea voyage"</li> <li>(d) Power supply for the indication and alarm system</li> <li>(e) Sensor for the indication and alarm system</li> <li>(f) Any other systems which are required for the ship in accordance with 14.10, Part 1, Part C of the Rules and Chapter 21, Part CS of the Rules</li> <li>(6) Where fitted, water leakage detection systems are to be tested including the proper audible alarms on the navigation bridge panel and on the engine control room panel, according to the procedures specified in the Operating and Maintenance Manual.</li> <li>(7) Where fitted, television surveillance systems are to be tested including the proper indications on the navigation bridge panel and on the engine control room panel, according to the procedures specified in the Operating and Maintenance Manual.</li> <li>(7) Where fitted, television surveillance systems are to be tested including the proper indications on the navigation bridge panel and on the engine control room panel, according to the procedures specified in the Operating and Maintenance Manual.</li> <li>(7) Where fitted, television surveillance systems are to be tested including the proper indications on the navigation bridge panel and on the engine control room panel, according to the procedures specified in the Operating and Maintenance Manual.</li> <li>(7) Where fitted, television surveillance systems are to be tested including the proper indications on the navigation bridge panel and on the engine control</li> </ul>		indicated in the Operating and Maintenance Manual.		indicated in the Operating and Maintenance Manual.	
<ul> <li>(a) Visible indication and audible alarms (hereinafter referred to as "indication and alarm system") at the navigation bridge panel and on the operating panel</li> <li>(b) Lamp test function at the navigation bridge panel and on the operating panel</li> <li>(c) Mode selecting function that allows selection between "harbour" and "sea voyage"</li> <li>(d) Power supply for the indication and alarm system</li> <li>(f) Any other systems which are required for the ship in accordance with 14.10, Part 1, Part C of the Rules and Chapter 21, Part CS of the Rules</li> <li>(6) Where fitted, water leakage detection systems are to be tested including the proper audible alarms on the navigation bridge panel and on the engine control room panel, according to the procedures specified in the Operating and Maintenance Manual.</li> <li>(7) Where fitted, television surveillance systems are to be tested including the proper indications on the navigation bridge monitor and on the engine control room panel, according to the procedures specified in the Operating and Maintenance Manual.</li> <li>(7) Where fitted, television surveillance systems are to be tested including the proper indications on the navigation bridge monitor and on the engine control room panel, according to the procedures specified in the Operating and Maintenance Manual.</li> <li>(7) Where fitted, television surveillance systems are to be tested including the proper indications on the navigation bridge monitor and on the engine control room panel, according to the procedures specified in the Operating and Maintenance Manual.</li> <li>(7) Where fitted, television surveillance systems are to be tested including the proper indications on the navigation bridge monitor and on the engine control</li> </ul>	(5)	Items (a) to (f) below for indication / monitoring	(5)	Items (a) to (f) below for indication / monitoring	
<ul> <li>referred to as "indication and alarm system") at the navigation bridge panel and on the operating panel</li> <li>(b) Lamp test function at the navigation bridge panel and on the operating panel</li> <li>(c) Mode selecting function that allows selection between "harbour" and "sea voyage"</li> <li>(d) Power supply for the indication and alarm system</li> <li>(e) Sensor for the indication and alarm system</li> <li>(f) Any other systems which are required for the ship in accordance with 14.10, Part 1, Part C of the Rules and Chapter 21, Part CS of the Rules</li> <li>(6) Where fitted, water leakage detection systems are to be tested including the proper audible alarms on the navigation bridge panel and on the engine control room panel, according to the procedures specified in the Operating and Maintenance Manual.</li> <li>(7) Where fitted, television surveillance systems are to be tested including the proper indications on the navigation bridge monitor and on the engine control room panel, according to the procedures specified in the Operating and Maintenance Manual.</li> <li>(7) Where fitted, television surveillance systems are to be tested including the proper indications on the navigation bridge monitor and on the engine control</li> </ul>		systems, where fitted.		systems, where fitted.	
<ul> <li>the navigation bridge panel and on the operating panel</li> <li>(b) Lamp test function at the navigation bridge panel and on the operating panel</li> <li>(c) Mode selecting function that allows selection between "harbour" and "sea voyage"</li> <li>(d) Power supply for the indication and alarm system</li> <li>(e) Sensor for the indication and alarm system</li> <li>(f) Any other systems which are required for the ship in accordance with 14.10, Part 1, Part C of the Rules and Chapter 21, Part CS of the Rules</li> <li>(6) Where fitted, water leakage detection systems are to be tested including the proper audible alarms on the navigation bridge panel and on the engine control room panel, according to the procedures specified in the Operating and Maintenance Manual.</li> <li>(7) Where fitted, television surveillance systems are to be tested including the proper indications on the navigation bridge monitor and on the engine control room panel, according to the procedures specified in the Operating and Maintenance Manual.</li> <li>(7) Where fitted, television surveillance systems are to be tested including the proper indications on the navigation bridge monitor and on the engine control room panel, according the proper indications on the navigation bridge monitor and on the engine control room panel, according the proper indications on the navigation bridge monitor and on the engine control room panel, according the proper indications on the navigation bridge monitor and on the engine control room panel, according the proper indications on the navigation bridge monitor and on the engine control</li> </ul>		(a) Visible indication and audible alarms (hereinafter		(a) Visible indication and audible alarms (hereinafter	
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<ul> <li>and on the operating panel</li> <li>(c) Mode selecting function that allows selection between "harbour" and "sea voyage"</li> <li>(d) Power supply for the indication and alarm system</li> <li>(e) Sensor for the indication and alarm system</li> <li>(f) Any other systems which are required for the ship in accordance with 14.10, Part 1, Part C of the Rules and Chapter 21, Part CS of the Rules</li> <li>(6) Where fitted, water leakage detection systems are to be tested including the proper audible alarms on the navigation bridge panel and on the engine control room panel, according to the procedures specified in the Operating and Maintenance Manual.</li> <li>(7) Where fitted, television surveillance systems are to be tested including the proper indications on the navigation bridge monitor and on the engine control</li> </ul>		panel		panel	
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<ul> <li>between "harbour" and "sea voyage"</li> <li>(d) Power supply for the indication and alarm system</li> <li>(e) Sensor for the indication and alarm system</li> <li>(f) Any other systems which are required for the ship in accordance with 14.10, Part 1, Part C of the Rules and Chapter 21, Part CS of the Rules</li> <li>(6) Where fitted, water leakage detection systems are to be tested including the proper audible alarms on the navigation bridge panel and on the engine control room panel, according to the procedures specified in the Operating and Maintenance Manual.</li> <li>(7) Where fitted, television surveillance systems are to be tested including the proper indications on the navigation bridge monitor and on the engine control</li> <li>(7) Where fitted, television surveillance systems are to be tested including the proper indications on the navigation bridge monitor and on the engine control</li> </ul>		and on the operating panel		and on the operating panel	
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<ul> <li>(e) Sensor for the indication and alarm system</li> <li>(f) Any other systems which are required for the ship in accordance with 14.10, Part 1, Part C of the Rules and Chapter 21, Part CS of the Rules</li> <li>(6) Where fitted, water leakage detection systems are to be tested including the proper audible alarms on the navigation bridge panel and on the engine control room panel, according to the procedures specified in the Operating and Maintenance Manual.</li> <li>(7) Where fitted, television surveillance systems are to be tested including the proper indications on the navigation bridge monitor and on the engine control</li> <li>(7) Where fitted, television surveillance systems are to be tested including the proper indications on the navigation bridge monitor and on the engine control</li> <li>(7) Where fitted, television surveillance systems are to be tested including the proper indications on the navigation bridge monitor and on the engine control</li> <li>(7) Where fitted, television surveillance systems are to be tested including the proper indications on the navigation bridge monitor and on the engine control</li> </ul>		between "harbour" and "sea voyage"		between "harbour" and "sea voyage"	
<ul> <li>(f) Any other systems which are required for the ship in accordance with 14.10, Part 1, Part C of the Rules and Chapter 21, Part CS of the Rules</li> <li>(6) Where fitted, water leakage detection systems are to be tested including the proper audible alarms on the navigation bridge panel and on the engine control room panel, according to the procedures specified in the Operating and Maintenance Manual.</li> <li>(7) Where fitted, television surveillance systems are to be tested including the proper indications on the navigation bridge monitor and on the engine control</li> <li>(7) Where fitted, television surveillance systems are to be tested including the proper indications on the navigation bridge monitor and on the engine control</li> </ul>		(d) Power supply for the indication and alarm system		(d) Power supply for the indication and alarm system	
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<ul> <li>Rules and Chapter 21, Part CS of the Rules</li> <li>(6) Where fitted, water leakage detection systems are to be tested including the proper audible alarms on the navigation bridge panel and on the engine control room panel, according to the procedures specified in the Operating and Maintenance Manual.</li> <li>(7) Where fitted, television surveillance systems are to be tested including the proper indications on the navigation bridge monitor and on the engine control</li> <li>(7) Where fitted, television surveillance systems are to be tested including the proper indications on the navigation bridge monitor and on the engine control</li> <li>(7) Where fitted, television surveillance systems are to be tested including the proper indications on the navigation bridge monitor and on the engine control</li> </ul>		(f) Any other systems which are required for the ship		(f) Any other systems which are required for the ship	
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<ul> <li>be tested including the proper audible alarms on the navigation bridge panel and on the engine control room panel, according to the procedures specified in the Operating and Maintenance Manual.</li> <li>(7) Where fitted, television surveillance systems are to be tested including the proper indications on the navigation bridge monitor and on the engine control</li> <li>(7) Where fitted, television surveillance systems are to be tested including the proper indications on the navigation bridge monitor and on the engine control</li> <li>(7) Where fitted, television surveillance systems are to be tested including the proper indications on the navigation bridge monitor and on the engine control</li> </ul>		Rules and Chapter 21, Part CS of the Rules		Rules and Chapter 21, Part CS of the Rules	
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<ul> <li>room panel, according to the procedures specified in the Operating and Maintenance Manual.</li> <li>(7) Where fitted, television surveillance systems are to be tested including the proper indications on the navigation bridge monitor and on the engine control</li> <li>room panel, according to the procedures specified in the Operating and Maintenance Manual.</li> <li>(7) Where fitted, television surveillance systems are to be tested including the proper indications on the navigation bridge monitor and on the engine control</li> </ul>		be tested including the proper audible alarms on the			
<ul> <li>the Operating and Maintenance Manual.</li> <li>(7) Where fitted, television surveillance systems are to be tested including the proper indications on the navigation bridge monitor and on the engine control</li> <li>the Operating and Maintenance Manual.</li> <li>(7) Where fitted, television surveillance systems are to be tested including the proper indications on the navigation bridge monitor and on the engine control</li> </ul>		navigation bridge panel and on the engine control		navigation bridge panel and on the engine control	
<ul> <li>(7) Where fitted, television surveillance systems are to be tested including the proper indications on the navigation bridge monitor and on the engine control</li> <li>(7) Where fitted, television surveillance systems are to be tested including the proper indications on the navigation bridge monitor and on the engine control</li> </ul>		room panel, according to the procedures specified in		room panel, according to the procedures specified in	
tested including the proper indications on the navigation bridge monitor and on the engine control tested including the proper indications on the navigation bridge monitor and on the engine control		the Operating and Maintenance Manual.		the Operating and Maintenance Manual.	
navigation bridge monitor and on the engine control navigation bridge monitor and on the engine control	(7)	Where fitted, television surveillance systems are to be	(7)	Where fitted, television surveillance systems are to be	
				tested including the proper indications on the	
room monitor. room monitor.		navigation bridge monitor and on the engine control		navigation bridge monitor and on the engine control	
		room monitor.		room monitor.	

#### Guidance for the survey and construction of steel ships Part B B3 B3.2.2-6

Correction	Present	Note
6 "Hearing protectors" in item 22, Table B3.2 in 3.2.1,	6 "Hearing protectors" in item 22, Table B3.2 in 3.2.1,	Reference correction
<b>Part B of the Rules</b> refers to the hearing protectors in An6.1	Part B of the Rules refers to the hearing protectors in An6.1	
and An6.2, Annex 2.3.1.4-2 "PROCEDURES FOR ON	and An6.2, Annex 2.1.4 "PROCEDURES FOR ON	
<b>BOARD NOISE MEASUREMENTS"</b> of the Rules.	BOARD NOISE MEASUREMENTS".	

### Guidance for the survey and construction of steel ships Part B B3 B3.2.3-1

Correction	Present	Note
1 The hose test stipulated in items 1 and 2 of <b>Table B3.3</b> ,		Wording correction
Part B of the Rules is to be in accordance with An1.4.4-3-of.	Part B of the Rules is to be in accordance with An1.4.4-3 of	
Annex 2.1.5 "Testing Procedures of Watertight	Annex 2.1.5 "Testing Procedures of Watertight	
Compartments" <u>of the Rules</u> .	Compartments".	

### Guidance for the survey and construction of steel ships Part B B3 B3.2.3-6

Correction	Present	Note
6 Inspection of water level detection and alarm systems	6 Inspection of water level detection and alarm systems	Reference correction
(refer to 13.8.5, 13.8.6 and 13.8.7, Part D of the Rules)	(refer to 13.8.5, 13.8.6 and 13.8.7, Part D of the Rules)	
specified in item 9 of Table B3.3, Part B of the Rules, is to	specified in item 9 of Table B3.3, Part B of the Rules, is to	
be carried out on the items installed on the following ships.	be carried out on the items installed on the following ships.	
(1) Cargo ships of 500 gross tonnage and above engaged	(1) Cargo ships of 500 gross tonnage and above engaged	
on international voyages, which have a single cargo	on international voyages, which have a single cargo	
hold below the freeboard deck or cargo holds below	hold below the freeboard deck or cargo holds below	
the freeboard deck which are not separated by at least	the freeboard deck which are not separated by at least	
one bulkhead made watertight up to that deck and	one bulkhead made watertight up to that deck and	
specified in the following (a) or (b):	specified in the following (a) or (b):	
(a) Cargo ships having a length $(L_f)$ of less than 100	(a) Cargo ships having a length $(L_f)$ of less than 100	
<i>m</i> , which had been at the beginning stage of	m, which had been at the beginning stage of	
construction before 1 July 1998	construction before 1 July 1998	
(b) Cargo ships having a length $(L_f)$ of less than 80	(b) Cargo ships having a length $(L_f)$ of less than 80	
m, which had been at the beginning stage of	m, which had been at the beginning stage of	
construction on and after 1 July 1998	construction on and after 1 July 1998	
(2) Cargo ships of 500 gross tonnage and above engaged	(2) Cargo ships of 500 gross tonnage and above engaged	

<ul> <li>on international voyages and specified in the following (a) or (b):</li> <li>(a) Bulk carriers defined in 1.3.1(13), Part B of the Rules, which had been at the beginning stage of construction before 1 July 2006</li> <li>(b) Bulk carriers defined in An1.2_1.7=(1), Annex 1.1, Part 2-2, Part C of the Rules, which had been at the beginning stage of construction on or after 1 July 2006</li> <li>(3) Cargo ships having multiple cargo holds (excluding bulk carriers defined in Annex 1.1 An1.2.1(1), <u>Annex 1.1</u>, Part 2-2, Part C of the Rules and tankers) that fall under any of the following.</li> <li>(a) for which the building contract is placed on or after 1 January 2024;</li> <li>(b) in the absence of a building contract, the keels of which are laid or which are at a similar stage of construction on or after 1 July 2024; or</li> <li>(c) the delivery of which is on or after 1 January 2024;</li> <li>(b) in the absence of a building contract is placed on or after 1 July 2024; or</li> <li>(c) the delivery of which is on or after 1 January 2024;</li> <li>(d) the delivery of which is on or after 1 January 2024;</li> <li>(e) the delivery of which is on or after 1 January 2024;</li> <li>(f) the delivery of which is on or after 1 January 2028</li> </ul>					
<ul> <li>(a) Bulk carriers defined in 1.3.1(13), Part B of the Rules, which had been at the beginning stage of construction before 1 July 2006</li> <li>(b) Bulk carriers defined in An1.2_1.2(1), Annex 1.1, Part 2-2, Part C of the Rules, which had been at the beginning stage of construction on or after 1 July 2006</li> <li>(3) Cargo ships having multiple cargo holds (excluding bulk carriers defined in Annex 1.1 - An1.2.1(1), <u>Annex 1.1</u>, Part 2-2, Part C of the Rules and tankers) that fall under any of the following.</li> <li>(a) for which the building contract, the keels of which are laid or which are at a similar stage of construction on or after 1 July 2024; or</li> <li>(b) in the absence of a building contract, the keels of which are laid or which is on or after 1 January</li> <li>(c) the delivery of which is on or after 1 January</li> </ul>					
<ul> <li>Rules, which had been at the beginning stage of construction before 1 July 2006</li> <li>(b) Bulk carriers defined in An1.2.1.2(1), Annex 1.1, Part 2-2, Part C of the Rules, which had been at the beginning stage of construction on or after 1 July 2006</li> <li>(3) Cargo ships having multiple cargo holds (excluding bulk carriers defined in Annex 1.1 An1.2.1(1), Annex 1.1, Part 2-2, Part C of the Rules and tankers) that fall under any of the following.</li> <li>(a) for which the building contract is placed on or after 1 January 2024;</li> <li>(b) in the absence of a building contract, the keels of which are laid or which are at a similar stage of construction on or after 1 July 2024; or</li> <li>(c) the delivery of which is on or after 1 January</li> </ul>		following (a) or (b):		following (a) or (b):	
<ul> <li>construction before 1 July 2006</li> <li>(b) Bulk carriers defined in An1.2_1.2(1), Annex 1.1, Part 2-2, Part C of the Rules, which had been at the beginning stage of construction on or after 1 July 2006</li> <li>(3) Cargo ships having multiple cargo holds (excluding bulk carriers defined in Annex 1.1 An1.2.1(1), <u>Annex 1.1</u>, Part 2-2, Part C of the Rules and tankers) that fall under any of the following.</li> <li>(a) for which the building contract is placed on or after 1 January 2024;</li> <li>(b) in the absence of a building contract, the keels of which are laid or which are at a similar stage of construction on or after 1 July 2024; or</li> <li>(c) the delivery of which is on or after 1 January</li> </ul>		(a) Bulk carriers defined in 1.3.1(13), Part B of the		(a) Bulk carriers defined in 1.3.1(13), Part B of the	
<ul> <li>(b) Bulk carriers defined in An1.2.1.2(1), Annex 1.1, Part 2-2, Part C of the Rules, which had been at the beginning stage of construction on or after 1 July 2006</li> <li>(3) Cargo ships having multiple cargo holds (excluding bulk carriers defined in Annex 1.1 An1.2.1(1), Annex 1.1, Part 2-2, Part C of the Rules and tankers) that fall under any of the following.</li> <li>(a) for which the building contract is placed on or after 1 January 2024;</li> <li>(b) in the absence of a building contract, the keels of which are laid or which are at a similar stage of construction on or after 1 July 2024; or</li> <li>(c) the delivery of which is on or after 1 January</li> </ul>		Rules, which had been at the beginning stage of		Rules, which had been at the beginning stage of	
<ul> <li>Part 2-2, Part C of the Rules, which had been at the beginning stage of construction on or after 1 July 2006</li> <li>(3) Cargo ships having multiple cargo holds (excluding bulk carriers defined in Annex 1.1 An1.2.1(1), Annex 1.1, Part 2-2, Part C of the Rules and tankers) that fall under any of the following.</li> <li>(a) for which the building contract is placed on or after 1 January 2024;</li> <li>(b) in the absence of a building contract, the keels of which are laid or which are at a similar stage of construction on or after 1 July 2024; or</li> <li>(c) the delivery of which is on or after 1 January</li> </ul>		construction before 1 July 2006		construction before 1 July 2006	
<ul> <li>the beginning stage of construction on or after 1 July 2006</li> <li>(3) Cargo ships having multiple cargo holds (excluding bulk carriers defined in Annex 1.1 An1.2.1(1), <u>Annex 1.1, Part 2-2, Part C of the Rules and tankers) that fall under any of the following.</u></li> <li>(a) for which the building contract is placed on or after 1 January 2024;</li> <li>(b) in the absence of a building contract, the keels of which are laid or which are at a similar stage of construction on or after 1 July 2024; or</li> <li>(c) the delivery of which is on or after 1 January</li> </ul>		(b) Bulk carriers defined in An1. <u>2.</u> 1.2(1), Annex 1.1,		(b) Bulk carriers defined in An1.1.2(1), Annex 1.1,	
<ul> <li>July 2006</li> <li>(3) Cargo ships having multiple cargo holds (excluding bulk carriers defined in Annex 1.1 An1.2.1(1), Annex 1.1, Part 2-2, Part C of the Rules and tankers) that fall under any of the following.</li> <li>(a) for which the building contract is placed on or after 1 January 2024;</li> <li>(b) in the absence of a building contract, the keels of which are laid or which are at a similar stage of construction on or after 1 July 2024; or</li> <li>(c) the delivery of which is on or after 1 January</li> </ul>		Part 2-2, Part C of the Rules, which had been at		Part 2-2, Part C of the Rules, which had been at	
<ul> <li>(3) Cargo ships having multiple cargo holds (excluding bulk carriers defined in Annex 1.1 An1.2.1(1), Annex 1.1, Part 2-2, Part C of the Rules and tankers) that fall under any of the following.</li> <li>(a) for which the building contract is placed on or after 1 January 2024;</li> <li>(b) in the absence of a building contract, the keels of which are laid or which are at a similar stage of construction on or after 1 July 2024; or</li> <li>(c) the delivery of which is on or after 1 January</li> </ul>		the beginning stage of construction on or after 1		the beginning stage of construction on or after 1	
<ul> <li>bulk carriers defined in Annex 1.1 An1.2.1(1), Annex 1.1, Part 2-2, Part C of the Rules and tankers) that fall under any of the following.</li> <li>(a) for which the building contract is placed on or after 1 January 2024;</li> <li>(b) in the absence of a building contract, the keels of which are laid or which are at a similar stage of construction on or after 1 July 2024; or</li> <li>(c) the delivery of which is on or after 1 January</li> </ul>		July 2006		July 2006	
<ul> <li><u>Annex 1.1, Part 2-2, Part C of the Rules and tankers) that fall under any of the following.</u></li> <li>(a) for which the building contract is placed on or after 1 January 2024;</li> <li>(b) in the absence of a building contract, the keels of which are laid or which are at a similar stage of construction on or after 1 July 2024; or</li> <li>(c) the delivery of which is on or after 1 January</li> </ul>	(3)	Cargo ships having multiple cargo holds (excluding	(3)	Cargo ships having multiple cargo holds (excluding	
<ul> <li>tankers) that fall under any of the following.</li> <li>(a) for which the building contract is placed on or after 1 January 2024;</li> <li>(b) in the absence of a building contract, the keels of which are laid or which are at a similar stage of construction on or after 1 July 2024; or</li> <li>(c) the delivery of which is on or after 1 January</li> </ul>		bulk carriers defined in Annex 1.1 An1.2.1(1),		bulk carriers defined in Annex 1.1 An1.2.1(1), Part	
<ul> <li>(a) for which the building contract is placed on or after 1 January 2024;</li> <li>(b) in the absence of a building contract, the keels of which are laid or which are at a similar stage of construction on or after 1 July 2024; or</li> <li>(c) the delivery of which is on or after 1 January</li> </ul>		Annex 1.1, Part 2-2, Part C of the Rules and		2-2, Part C of the Rules and tankers) that fall under	
<ul> <li>after 1 January 2024;</li> <li>(b) in the absence of a building contract, the keels of which are laid or which are at a similar stage of construction on or after 1 July 2024; or</li> <li>(c) the delivery of which is on or after 1 January</li> <li>(c) the delivery of which is on or after 1 January</li> </ul>		tankers) that fall under any of the following.		any of the following.	
<ul> <li>(b) in the absence of a building contract, the keels of which are laid or which are at a similar stage of construction on or after 1 July 2024; or</li> <li>(c) the delivery of which is on or after 1 January</li> <li>(b) in the absence of a building contract, the keels of which are laid or which are at a similar stage of construction on or after 1 July 2024; or</li> <li>(c) the delivery of which is on or after 1 January</li> <li>(b) in the absence of a building contract, the keels of which are laid or which are at a similar stage of construction on or after 1 July 2024; or</li> <li>(c) the delivery of which is on or after 1 January</li> </ul>		(a) for which the building contract is placed on or		(a) for which the building contract is placed on or	
<ul> <li>which are laid or which are at a similar stage of construction on or after 1 July 2024; or</li> <li>(c) the delivery of which is on or after 1 January</li> <li>(c) the delivery of which is on or after 1 January</li> <li>(c) the delivery of which is on or after 1 January</li> </ul>		after 1 January 2024;		after 1 January 2024;	
construction on or after 1 July 2024; orconstruction on or after 1 July 2024; or(c) the delivery of which is on or after 1 January(c) the delivery of which is on or after 1 January		(b) in the absence of a building contract, the keels of		(b) in the absence of a building contract, the keels of	
(c) the delivery of which is on or after 1 January (c) the delivery of which is on or after 1 January		which are laid or which are at a similar stage of		which are laid or which are at a similar stage of	
		construction on or after 1 July 2024; or		construction on or after 1 July 2024; or	
2028 2028		(c) the delivery of which is on or after 1 January		(c) the delivery of which is on or after 1 January	
		2028		2028	

#### Guidance for the survey and construction of steel ships Part B B3 B3.2.3-7

Correction	Present	Note
7 Inspection of Dewatering Arrangements (refer to	7 Inspection of Dewatering Arrangements (refer to	Reference correction
13.5.10, Part D of the Rules) specified in item 10 of Table	13.5.10, Part D of the Rules) specified in item 10 of Table	
<b>B3.3, Part B of the Rules</b> , is to be carried out on the items	B3.3, Part B of the Rules, is to be carried out on the items	
installed on the following ships.	installed on the following ships.	
(1) Cargo ships of 500 <i>gross tonnage</i> and above engaged	(1) Cargo ships of 500 gross tonnage and above engaged	
on international voyages and specified in the	on international voyages and specified in the	
following (a) or (b):	following (a) or (b):	
(a) Bulk carriers defined in 1.3.1(13), Part B of the	(a) Bulk carriers defined in 1.3.1(13), Part B of the	
Rules, which had been at the beginning stage of	Rules, which had been at the beginning stage of	
construction before 1 July 2006	construction before 1 July 2006	
(b) Bulk carriers defined in An1.2.1.2(1), Annex 1.1,	(b) Bulk carriers defined in An1.1.2(1), Annex 1.1,	
Part 2-2, Part C of the Rules, which had been at	Part 2-2, Part C of the Rules, which had been at	
the beginning stage of construction on or after 1	the beginning stage of construction on or after 1	
July 2006	July 2006	

### Guidance for the survey and construction of steel ships Part B B3 B3.3.2-1

Correction	Present	Note
1 In applying 3.3.2-1, Part B of the Rules, 2.3.2-2 of		Wording correction
Rules for Automatic and Remote <u>Control Systems</u> is also	Rules for Automatic and Remote is also to be applied for	
to be applied for surveys of periodically unattended machinery	surveys of periodically unattended machinery spaces.	
spaces.		

### Guidance for the survey and construction of steel ships Part B B3 B3.4.2-2

Correction	Present	Note
2 In applying item 3(1)(b) of Table B3.9, Part B of the	2 In applying item 3(1)(b) of Table B3.9, cargo and	Wording correction
Rules, cargo and process piping (including the expansion	process piping (including the expansion arrangements,	wording correction
arrangements, insulation from the hull structure, pressure	insulation from the hull structure, pressure relief and drainage	
relief and drainage arrangements, and water curtain protection	arrangements, and water curtain protection as appropriate) are	
as appropriate) are also to be examined.	also to be examined.	

#### Guidance for the survey and construction of steel ships Part B B3 B3.4.2-3

Correction	Present	Note
3 In applying item 4 of Table B3.9, Part B of the Rules,	3 In applying item 4 of <b>Table B3.9</b> , the examination of	Wording correction
the examination of high level alarms on ships at beginning	high level alarms on ships at beginning stage of construction	to of alling confection
stage of construction on or after 1 July 2017 is to include the	on or after 1 July 2017 is to include the functional test as	
functional test as specified in 13.3.6, Part N of the Rules.	specified in 13.3.6, Part N of the Rules.	

#### Guidance for the survey and construction of steel ships Part B B4 B4.2.3-2

Correction	Present	Note
2 The hose test stipulated in items 2 and 14 of Table	1	Wording correction
B4.1, Part B of the Rules is to be in accordance with An1.4.4-	B4.1, Part B of the Rules is to be in accordance with An1.4.4-	wording correction
3-of. Annex 2.1.5 "Testing Procedures of Watertight	3 of Annex 2.1.5 "Testing Procedures of Watertight	
Compartments" <u>of the Rules</u> .	Compartments".	

#### Guidance for the survey and construction of steel ships Part B B4 B4.6.2-1

Correction	Present	Note
1 The sentence "it is to be confirmed that such non-	1 The sentence "it is to be confirmed that such non-	Wording correction
metallic membranes are maintained in good condition" in item	metallic membranes are maintained in good condition" in item	tt of dining controction
2 of Table B4.8, Part B of the Rules means the following:	2 of Table B4.8, Part B of the Rules means the following:	
visual examinations are to be carried out to verify no cracks	visual examinations are to be carried out to verify no cracks	
and deterioration; and it is to be confirmed membranes are	and deterioration; and it is to be confirmed membranes are	
renewed at intervals not exceeding 3 <i>years</i> , have been properly	renewed at intervals not exceeding 3 years, have been properly	
adjusted, and have been tested for performance. In cases	adjusted, and have been tested for performance. In cases	
where relief valves are approved for use for membranes whose	where relief valves are approved for use for membranes whose	
renewal intervals exceed 3 years in accordance with 6.4.1-3,	renewal intervals exceed 3 years in accordance with 6.4.1-3,	
Annex 1, Part GF of "Guidance for Equipment and	Annex 1, Part GF of "Guidance for Equipment and	
Fittings of Ships Using Low-flashpoint Fuels", Part GF of	Fittings of Ships Using Low-flashpoint Fuels", it is to be	
the Guidance, it is to be confirmed that they are renewed at	confirmed that they are renewed at approved intervals.	
approved intervals.		

#### Guidance for the survey and construction of steel ships Part B B4 B4.6.2-2

Correction	Present	Note
2 The term "hazardous areas" in item 3 of Table B4.8, Part B of the Rules means the hazardous areas specified in 12.5, Part GF, and <u>4.2.3</u> -4 and -5-of <u>4.2.3</u> , Part H of the Rules.	2 The term "hazardous areas" in item 3 of Table B4.8, Part B of the Rules means the hazardous areas specified in 12.5, Part GF, and -4 and -5 of 4.2.3, Part H of the Rules.	Wording correction

### Guidance for the survey and construction of steel ships Part B B5 B5.2.3-2

Correction	Present	Note
2 The hose test stipulated in 5.2.3-2(2) and (5), Part B		Wording correction
of the Rules is to be in accordance with An1.4.4-3, Annex	of the Rules is to be in accordance with An1.4.4-3, Annex	
2.1.5 "Testing Procedures of Watertight Compartments"-	2.1.5 "Testing Procedures of Watertight Compartments".	
of the Rules.		

### Guidance for the survey and construction of steel ships Part B B5 B5.2.6-6

Correction	Present	Note
6 "Ship's longitudinal strength evaluation" required in	6 "Ship's longitudinal strength evaluation" required in	Wording correction
5.2.6-8, Part B of the Rules is to be carried out in accordance	5.2.6-8, Part B of the Rules is to be carried out in accordance	
with the following.	with the following.	
(1) Transverse sectional areas of deck flanges (deck	(1) Transverse sectional areas of deck flanges (deck	
plating and deck longitudinals) and bottom flanges	plating and deck longitudinals) and bottom flanges	
(bottom shell plating and bottom longitudinals) of the	(bottom shell plating and bottom longitudinals) of the	
ship's hull girder are to be calculated by using the	ship's hull girder are to be calculated by using the	
thickness of structural members measured in	thickness of structural members measured in	
transverse sections specified in Table B5.8, Table	transverse sections specified in Table B5.8, Table	
B5.10, Table B5.15 and Table B5.21, Part B of the	B5.10, Table B5.15 and Table B5.21, Part B of the	
<b>Rules.</b> It is to be confirmed that the diminution of the	Rules. It is to be confirmed that the diminution of the	
transverse sectional area does not exceed 10% of the	transverse sectional area does not exceed 10% of the	
as-built area.	as-built area.	
(2) Where the diminution of sectional areas of either deck	(2) Where the diminution of sectional areas of either deck	
or bottom flange exceeds 10% of the respective as-	or bottom flange exceeds 10% of the respective as-	
built area, it is to be confirmed that the actual section	built area, it is to be confirmed that the actual section	
moduli, which are calculated by using the thicknesses	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 B5.31, Part B of the Rules.
- (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 B5.30, Part B of the Rules.
- (5) Where repairs are carried out to satisfy the requirements of the preceding (1) 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 130 *m* 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)**.

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 B5.31.
- (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 B5.30.
- (5) Where repairs are carried out to satisfy the requirements of the preceding (1) 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 130 m 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).

#### Guidance for the survey and construction of steel ships Part B B5 B5.6.2-2

Correction	Present	Note
2 The term "hazardous areas" in item 6 of Table B5.29, Part B of the Rules means the hazardous areas specified in 12.5, Part GF, and <u>4.2.3</u> -4 and -5-of 4.2.3, Part H of the Rules.	Part B of the Rules means the hazardous areas specified in	

### Guidance for the survey and construction of steel ships Part B B5 B5.6.2-2

Correction	Present	Note
1 The pressure test stipulated in item 2 of Table B6.1,	1 The pressure test stipulated in item 2 of Table B6.1,	
Part B of the Rules refers to that specified in item 13 of Table	Part B of the Rules refers to that specified in item 13 of Table	
An1.4-1, Annex 2.1.5 "Testing Procedures of Watertight	An1.4-1, Annex 2.1.5 "Testing Procedures of Watertight	
Compartments"- of the Rules.	Compartments".	Wording correction

### Guidance for the survey and construction of steel ships Part B B6 B6.1.1-1

Correction	Present	Note
1 The pressure test stipulated in item 2 of Table B6.1,	1 The pressure test stipulated in item 2 of Table B6.1,	
Part B of the Rules refers to that specified in item 13 of Table	Part B of the Rules refers to that specified in item 13 of Table	
An1.4-1, Annex 2.1.5 "Testing Procedures of Watertight	An1.4-1, Annex 2.1.5 "Testing Procedures of Watertight	
Compartments"- <u>of the Rules.</u>	Compartments".	Wording correction

## Guidance for the survey and construction of steel ships Part B B9 B9.1.3-4

Correction	Present	Note
4 Approval of PMS	4 Approval of PMS	
Conditions for approval of PMS are as follows:	Conditions for approval of PMS are as follows:	
(1) Machinery maintenance scheme	(1) Machinery maintenance scheme	
The machinery maintenance scheme for I	MS is to The machinery maintenance scheme for PMS is to	
specify maintenance works such as	overhaul specify maintenance works such as overhaul	
inspection, replacement of parts and	general inspection, replacement of parts and general	
inspection with their time schedule and/o	running inspection with their time schedule and/or running	
hours for each item of machinery and e		
including their parts. The scheme is to be		
based on the inspection and maintenance		
recommended by the manufacturers of the r		
and equipment with input from the exper		
knowledge of the shipowner and ship ma		
company. The inspection intervals for		
covered by PMS are generally planned not		
5 years. However, for the items whose		
intervals are specified on the basis of the	•	
hours, longer intervals may be accepted as l		
intervals are based on the manu		
recommendations. When the machinery ma		
scheme is changed, the amended scheme	•	
submitted to the Society for approval.	submitted to the Society for approval.	
(2) Survey Schedule Table	(2) Survey Schedule Table	
Survey intervals of the survey items are not		
those specified in the machinery ma	1	
scheme. The following items are to be		
opened and examined in the presence of the	•	
(a) Rotors, casings, main bearings,		
between turbine and reduction gea	-	
valves and manoeuvring valves for m turbine	in steam valves and manoeuvring valves for main steam turbine	
(b) Auxiliary steam turbine for main gener		
(0) Auxinary swall turblic for hidli geller		

	(c) Reduction gears for main propulsion		(c) Reduction gears for main propulsion	
	(d) Flexible couplings for main propulsion		(d) Flexible couplings for main propulsion	
	(e) Other items deemed necessary by the Society.		(e) Other items deemed necessary by the Society.	
	When this survey schedule table is amended, the		When this survey schedule table is amended, the	
	amended survey schedule table is to be submitted to		amended survey schedule table is to be submitted to	
	the Society for approval.		the Society for approval.	
(3)	Machinery Maintenance Records	(3)	Machinery Maintenance Records	
	Machinery maintenance records are to include at least		Machinery maintenance records are to include at least	
	the following items. These records are to be retained		the following items. These records are to be retained	
	on board the ship at all times.		on board the ship at all times.	
	(a) Date of maintenance work		(a) Date of maintenance work	
	(b) Signature by the Chief Engineer		(b) Signature by the Chief Engineer	
	(c) Details of maintenance work and results		(c) Details of maintenance work and results	
	(d) Total running hours (parts replacement intervals		(d) Total running hours (parts replacement intervals	
	and overhaul intervals)		and overhaul intervals)	
	(e) Names of parts replaced		(e) Names of parts replaced	
	(f) Measuring data (including original design		(f) Measuring data (including original design	
	dimensions and allowable tolerance)		dimensions and allowable tolerance)	
	(g) The condition of damage and repair method		(g) The condition of damage and repair method	
	(h) Results of visual examinations of lubricating oil		(h) Results of visual examinations of lubricating oil	
	conditions carried out through open-up		conditions carried out through open-up	
	examinations of the lubricating oil filters, etc. of		examinations of the lubricating oil filters, etc. of	
	crankpins, crank journals, thrust shafts and		crankpins, crank journals, thrust shafts and	
	bearings of reciprocating internal combustion		bearings of reciprocating internal combustion	
	engines used as main propulsion machinery (in		engines used as main propulsion machinery (in	
	cases where the principle components of such		cases where the principle components of such	
	engines were inspected through independent		engines were inspected through independent	
	open-up surveys conducted by chief engineers)		open-up surveys conducted by chief engineers)	
(4)	Chief Engineer	(4)	Chief Engineer	
	The Chief Engineer in charge of PMS is to be a person		The Chief Engineer in charge of PMS is to be a person	
	designated by the shipowner or ship management		designated by the shipowner or ship management	
	company.		company.	
(5)	Computer	(5)	Computer	
	Computers used for maintenance management system		Computers used for maintenance management system	

are	to satisfy the following requirements specified in	are	to satisfy the following requirements specified in	
<b>(a)</b>	through (f):	(a)	through (f):	
(a)	Computers are to be configured so that the effects	(a)	Computers are to be configured so that the effects	
	of a system failure in part of the circuits or		of a system failure in part of the circuits or	
	devices can be limited to a certain range as far as		devices can be limited to a certain range as far as	
	possible.		possible.	
(b)	Each system component is to be protected against	(b)	Each system component is to be protected against	
	overvoltages (electrical noise) likely to enter		overvoltages (electrical noise) likely to enter	
	through input/output terminals.		through input/output terminals.	
(c)	Central processing units and important peripheral	(c)	Central processing units and important peripheral	
	devices are to have a self-monitoring function.		devices are to have a self-monitoring function.	
(d)	Important programmes and data are not to be	(d)	Important programmes and data are not to be	
	deleted in the event of a temporary failure of the		deleted in the event of a temporary failure of the	
	external source of power supply.		external source of power supply.	
(e)	Spare parts for important system components that	(e)	Spare parts for important system components that	
	require specialist services for repairs are to be		require specialist services for repairs are to be	
	supplied in readily replaceable part units.		supplied in readily replaceable part units.	
(f)	It is recommended that the software is approved	(f)	It is recommended that the software is approved	
	in accordance with Annex 9.1.3		in accordance with Annex 9.1.3	
	<b>"PROCEDURES FOR APPROVAL OF</b>		<b>"PROCEDURES FOR APPROVAL OF</b>	
	PMS/CBM MANAGEMENT SOFTWARE".		PMS/CBM MANAGEMENT SOFTWARE".	Wording correction
	of the Rules.			

### Guidance for the survey and construction of steel ships Part B B9 B9.1.3-6

Correction	Present	Note
6 Surveys based on condition monitoring and diagnosis The wording "requirements specified otherwise by the Society" in 0.1.3.2 Part DB of the Dules means the	6 Surveys based on condition monitoring and diagnosis The wording "requirements specified otherwise by the Society" in 9.1.3-2, Part D of the Rules means the following:	Reference correction
Society" in 9.1.3-2, Part $\rightarrow B$ of the Rules means the following:	Society in 9.1.3-2, Fart D of the Kules means the following.	
<ul><li>(1) Annual Survey</li><li>It is to be verified that condition monitoring has been</li></ul>	<ul><li>(1) Annual Survey</li><li>It is to be verified that condition monitoring has been</li></ul>	
properly carried out and as a result of which, machinery, equipment and parts are in good order. Confirmation that the condition monitoring system	properly carried out and as a result of which, machinery, equipment and parts are in good order. Confirmation that the condition monitoring system	
and maintenance management system are being operated effectively and are also in good order is to be	and maintenance management system are being	
made. If as a result of this confirmation, the Society deems that proper maintenance has not been carried	made. If as a result of this confirmation, the Society	
out, an open-up examination in the presence of the surveyor may be required. Condition monitoring data	out, an open-up examination in the presence of the surveyor may be required. Condition monitoring data	
and the results of the diagnosis are to be evaluated by the Society before the survey and are to be retained on	and the results of the diagnosis are to be evaluated by the Society before the survey and are to be retained on	
board at all times.	board at all times.	
(2) Occasional Survey	(2) Occasional Survey	
Any damage to items covered by PMS or any	Any damage to items covered by PMS or any	
abnormal conditions observed by the condition	abnormal conditions observed by the condition	
monitoring system are to be reported to the Society	monitoring system are to be reported to the Society	
according to the approved machinery maintenance	according to the approved machinery maintenance	
scheme without delay. Upon review of the reports, the	scheme without delay. Upon review of the reports, the	
Society may request an occasional survey when	Society may request an occasional survey when	
considered necessary.	considered necessary.	

## Guidance for the survey and construction of steel ships Part B B9 B9.1.4-5

Correction	Present	Note
<ul> <li>S Approval of CBM</li> <li>Conditions for approval of CBM are as follows: <ol> <li>Machinery maintenance scheme for CBM</li> <li>The machinery maintenance scheme for CBM is to include maintenance and management of the records of machinery, equipment or associated components subject to the scheme and specify the following (a) to (d). When the machinery maintenance scheme is changed, the amended scheme is to be submitted to the Society for approval. <ol> <li>The functions of the condition monitoring system</li> <li>Procedures related to condition monitoring and diagnosis</li> <li>Handling procedures in cases where an abnormality is found (including procedures for creating maintenance records and reporting to the Society)</li> <li>Procedures for identifying defects and failures that were not prevented by condition monitoring and diagnosis and for modifying the machinery maintenance scheme for CBM accordingly</li> </ol> </li> <li>Condition monitoring system The condition monitoring system is to satisfy the following requirements specified in (a) to (h). In cases where this system is modified, that modification is to be approved by the Society. <ol> <li>The computer collects data from sensors or centralized machinery monitoring and control systems. The sensors are to be subject to the tests equivalent to those specified in 18.7.1, Part D of the Rules.</li> </ol> </li> </ol></li></ul>	<ul> <li>S Approval of CBM</li> <li>Conditions for approval of CBM are as follows: <ol> <li>Machinery maintenance scheme for CBM</li> <li>The machinery maintenance scheme for CBM is to include maintenance and management of the records of machinery, equipment or associated components subject to the scheme and specify the following (a) to (d). When the machinery maintenance scheme is changed, the amended scheme is to be submitted to the Society for approval. <ol> <li>The functions of the condition monitoring system</li> <li>Procedures related to condition monitoring and diagnosis</li> <li>Handling procedures in cases where an abnormality is found (including procedures for creating maintenance records and reporting to the Society)</li> <li>Procedures for identifying defects and failures that were not prevented by condition monitoring and diagnosis and for modifying the machinery maintenance scheme for CBM accordingly</li> </ol> </li> <li>Condition monitoring system</li> <li>The condition monitoring system is to satisfy the following requirements specified in (a) to (h). In cases where this system is modified, that modification is to be approved by the Society.</li> <li>The computer collects data from sensors or centralized machinery monitoring and control systems. The sensors are to be subject to the tests equivalent to those specified in 18.7.1, Part D of the Rules.</li> </ol></li></ul>	Note Wording correction

		<b>B9.1.3-4</b> (					
Guidanc	<u>e</u> and	Chapters	1, 2	and	3, Pa	art 2	X of
the Rule	s.						

- (c) In addition to (b), the software is to have condition monitoring function specified in 9.1.3 **"PROCEDURES** Annex FOR **APPROVAL PMS/CBM** OF **MANAGEMENT SOFTWARE**" of the Rules and be suited to diagnosing any deterioration of machinery, equipment or associated components on the basis of the data from the sensors or centralized machinery monitoring and control systems specified in (a). The software is to be suitable for diagnosing the condition of equipment or its components on the basis of independent or coalesced data, or their trends.
- (d) The condition monitoring system is to produce condition monitoring records.
- (e) In cases where condition monitoring and diagnosis are conducted on board ships, the condition monitoring system is to be such that no specialized knowledge of data analysis is required to use the system.
- (f) In cases where remote condition monitoring and diagnosis are conducted (i.e. the data sent from the ship is analyzed remotely), the condition monitoring systems are to include a communication function to transfer the data collected by the sensors or centralized machinery monitoring and control systems specified in (a). Particular attention is to be paid to the cyber safety and security of said communication function. The system equipped on board is to be arranged to store the condition monitoring data in

comply with **B9.1.3-4**(5)(a) to (e) and **Chapters 1, 2 and 3, Part X of the Rules**.

- (c) In addition to (b), the software is to have condition monitoring function specified in **"PROCEDURES** Annex 9.1.3 FOR **APPROVAL PMS/CBM** OF **MANAGEMENT SOFTWARE**" and be suited to diagnosing any deterioration of machinery, equipment or associated components on the basis of the data from the sensors or centralized machinery monitoring and control systems specified in (a). The software is to be suitable for diagnosing the condition of equipment or its components on the basis of independent or coalesced data, or their trends.
- (d) The condition monitoring system is to produce condition monitoring records.
- (e) In cases where condition monitoring and diagnosis are conducted on board ships, the condition monitoring system is to be such that no specialized knowledge of data analysis is required to use the system.
- (f) In cases where remote condition monitoring and diagnosis are conducted (i.e. the data sent from the ship is analyzed remotely), the condition monitoring systems are to include a communication function to transfer the data collected by the sensors or centralized machinery monitoring and control systems specified in (a). Particular attention is to be paid to the cyber safety and security of said communication function. The system equipped on board is to be arranged to store the condition monitoring data in

the event of loss of the communication function and transfer the data after the communication function is restored.

- (g) In cases where limiting parameters are modified, such modifications are to be identified.
- (h) The condition monitoring system is to include a method for backing up data at regular intervals.
- (3) Maintenance management system
   The maintenance management system is to have the maintenance records function specified in Annex
   9.1.3 "PROCEDURES FOR APPROVAL OF PMS/CBM MANAGEMENT SOFTWARE": of the Rules. This function may be incorporated into the condition monitoring system specified in (2).
- (4) Survey Schedule Table

Annual surveys are to be performed to confirm that the machinery maintenance scheme for CBM is being properly implemented. In cases where there is any damage to the machinery, equipment or associated components subject to the scheme or an abnormality is found in the results of condition monitoring and diagnosis, the shipowner (or ship management company) is to promptly report this to the Society and apply for an occasional survey if instructed to do so by the Society. When this survey schedule table is amended, the amended survey schedule table is to be submitted to the Society for approval.

- (5) Condition monitoring record Condition monitoring records are to include at least the following items.
  - (a) Condition monitoring data, including all data since last open-up inspection, the original baseline data specified in -6(2) and relevant maintenance data.

the event of loss of the communication function and transfer the data after the communication function is restored.

- (g) In cases where limiting parameters are modified, such modifications are to be identified.
- (h) The condition monitoring system is to include a method for backing up data at regular intervals.
- (3) Maintenance management system

The maintenance management system is to have the maintenance records function specified in Annex 9.1.3 "PROCEDURES FOR APPROVAL OF PMS/CBM MANAGEMENT SOFTWARE". This function may be incorporated into the condition monitoring system specified in (2).

(4) Survey Schedule Table

Annual surveys are to be performed to confirm that the machinery maintenance scheme for CBM is being properly implemented. In cases where there is any damage to the machinery, equipment or associated components subject to the scheme or an abnormality is found in the results of condition monitoring and diagnosis, the shipowner (or ship management company) is to promptly report this to the Society and apply for an occasional survey if instructed to do so by the Society. When this survey schedule table is amended, the amended survey schedule table is to be submitted to the Society for approval.

(5) Condition monitoring record

Condition monitoring records are to include at least the following items.

(a) Condition monitoring data, including all data since last open-up inspection, the original baseline data specified in -6(2) and relevant maintenance data.

	(b) Signature of the chief engineer		(b) Signature of the chief engineer	
	(c) Contents and results of condition monitoring and		(c) Contents and results of condition monitoring and	
	diagnosis (including criteria for judgment)		diagnosis (including criteria for judgment)	
(6)	Machinery maintenance record	(6)	Machinery maintenance record	
	The machinery maintenance records are to include the		The machinery maintenance records are to include the	
	items specified in B9.1.3-4(3) for the machinery,		items specified in B9.1.3-4(3) for the machinery,	
	equipment or associated components subject to the		equipment or associated components subject to the	
	scheme. Those records are to be created by the chief		scheme. Those records are to be created by the chief	
	engineer and always to be available on board the ship.		engineer and always to be available on board the ship.	
(7)	Chief engineer and other ship personnel	(7)	Chief engineer and other ship personnel	
	The machinery maintenance scheme for CBM is to be		The machinery maintenance scheme for CBM is to be	
	implemented by a chief engineer designated by the		implemented by a chief engineer designated by the	
	shipowner or ship management company. Access to		shipowner or ship management company. Access to	
	the condition monitoring system and maintenance		the condition monitoring system and maintenance	
	management system is to be permitted only to the		management system is to be permitted only to the	
	chief engineer and other ship personnel who are		chief engineer and other ship personnel who are	
	designated by the shipowner or ship management		designated by the shipowner or ship management	
	company.		company.	

## Guidance for the survey and construction of steel ships Part B B10 B10.2.3

Correction	Present	Note
The wording "items specified otherwise by the		Reference correction
Society" in 10.2.3, Part B of the Rules means surveys of the	Society" in 10.2.3, Part B of the Rules means surveys of the	
tests specified in 10.2.3.2-2(1) to (3), Part B of the Rules, and	tests specified in 10.3.2-2(1) to (3), Part B of the Rules, and	
the wording "the Society may approve other survey methods	the wording "the Society may approve other survey methods	
which it considers to be appropriate" means to be in	which it considers to be appropriate" means to be in	
accordance with B2.1.4-1(2).	accordance with B2.1.4-1(2).	

#### Guidance for the survey and construction of steel ships Part B B11 B11.2.3

Correction	Present	Note
The wording "items specified otherwise by the	The wording "items specified otherwise by the	Reference correction
Society" in 11.2.3, Part B of the Rules means surveys of the	Society" in 11.2.3, Part B of the Rules means surveys of the	
tests specified in 11.2.3.2-2(1) and (7), Part B of the Rules as	tests specified in 11.3.2-2(1) and (7), Part B of the Rules as	
well as 7.2.1 and 7.2.2, Part T of the Rules, and the wording	well as 7.2.1 and 7.2.2, Part T of the Rules, and the wording	
"the Society may approve other survey methods which it	"the Society may approve other survey methods which it	
considers to be appropriate" means to be in accordance with	considers to be appropriate" means to be in accordance with	
B2.1.4-1(2).	B2.1.4-1(2).	

#### Guidance for the survey and construction of steel ships Part B B12 B12.2.2-1

Correction	Present	Note
	12.2.2-1(1)(j), Part B of the Rules is to be prepared in accordance with Annex B2.3.2, "GUIDANCE FOR	

#### Guidance for the survey and construction of steel ships Part B B12 B12.2.2-7

Correction	Present	Note
7 "Details of drilling derrick constructions" stipulated in 12.2.2 $1(1)(x)$ Point B of the Bules refers to the following	7 "Details of drilling derrick constructions" stipulated in 12.2.2-1(1)(p)i), refers to the following plans:	Wording correction
12.2.2-1(1)(p)i), <u>Part B of the Rules</u> , refers to the following plans:	12.2.2-1(1)(p)i), refers to the following plans:	
(1) General arrangement	(1) General arrangement	
(2) Details of the main structural members of the drilling	(2) Details of the main structural members of the drilling	
derrick	derrick	
(3) Assembly plan of the drilling derrick	(3) Assembly plan of the drilling derrick	
(4) Foundations and anchor bolt plans of the drilling	(4) Foundations and anchor bolt plans of the drilling	
derrick	derrick	

#### Guidance for the survey and construction of steel ships Part B B12 B12.2.2-8

Correction	Present	Note
8 "Relevant documents" stipulated in 12.2.2-	8 "Relevant documents" stipulated in 12.2.2-1(1)(p)ii),	Reference correction
1(1)(p) <del>ii),i), Part B of the Rules,</del> refers to the following:	refers to the following:	
(1) Results of structural analysis	(1) Results of structural analysis	
(2) Structural details	(2) Structural details	
(3) Structural analysis method	(3) Structural analysis method	
(4) Design criteria	(4) Design criteria	
(5) Technical specifications for equipment installed on	(5) Technical specifications for equipment installed on	
the drilling derrick	the drilling derrick	
(6) Material specification of the drilling derrick	(6) Material specification of the drilling derrick	
(7) In cases where bolted connections are applied for the	(7) In cases where bolted connections are applied for the	
drilling derrick, the specifications, materials and	drilling derrick, the specifications, materials and	
torque procedures for said bolts	torque procedures for said bolts	
(8) Painting plans for the drilling derrick	(8) Painting plans for the drilling derrick	
(9) Rigging arrangement	(9) Rigging arrangement	

### Guidance for the survey and construction of steel ships Part B B12 B12.2.3-8

	Correction		Present	Note
	for drilling derricks stipulated in 12.2.3-1(7)).	8	Surveys for drilling derricks stipulated in 12.2.3-1(7)	Wording correction
Part B of the Ru	<b>lles</b> are to be in accordance with the following	are to	be in accordance with the following (1) to (3):	
(1) to (3):				
	examinations are to be carried out on drilling	(1)	General examinations are to be carried out on drilling	
derricks	including welded and bolted connections.		derricks including welded and bolted connections.	
(2) Non-des	tructive tests (ultrasonic tests or radiographic	(2)	Non-destructive tests (ultrasonic tests or radiographic	
tests) are	e to be carried out on welded connections of		tests) are to be carried out on welded connections of	
main str	uctural members and other parts liable to bear		main structural members and other parts liable to bear	
high stre	ess.		high stress.	
(3) It is to	be confirmed that the drilling derrick is	(3)	It is to be confirmed that the drilling derrick is	
properly	installed in its designed position and within		properly installed in its designed position and within	
the allow	vable design tolerance.		the allowable design tolerance.	

#### Guidance for the survey and construction of steel ships Part B B13 B13.4.4-2

	Correction		Present	Note
2	Where the examinations specified in -1 are carried out	2	Where the examinations specified in -1 are carried out	
on the	representative unit, the following examinations are to	on the	representative unit, the following examinations are to	
be car	ried out on the rest of the units.	be carr	ied out on the rest of the units.	
(1)	Outside of side shell plating above the water line and	(1)	Outside of side shell plating above the water line and	
	deck		deck	
	Visual inspection		Visual inspection	
(2)	Outside of side shell plating below the water line and	(2)	Outside of side shell plating below the water line and	
	bottom plating		bottom plating	
	In-water visual inspection (by an appropriate method		In-water visual inspection (by an appropriate method	
	of the Society) and confirmation of the condition of		of the Society) and confirmation of the condition of	
	cathodic protection measures and coating		cathodic protection measures and coating	
(3)	Pump room and motor room	(3)	Pump room and motor room	
	Examinations specified in -1(3) above		Examinations specified in -1(3) above	
(4)	Thickness measurement of structural members	(4)	Thickness measurement of structural members	
	Unless specified otherwise, thickness measurements		Unless specified otherwise, thickness measurements	
	of structural members specified in (a), (b), (c) and		of structural members specified in (a), (b), (c) and (d)	Reference correction
	(de) and uppermost part of structural members		and uppermost part of structural members specified in	
	specified in (g) and (i) of Table B13.34.4-1		(g) and (i) of Table B13.3.4-1	

### Guidance for the survey and construction of steel ships Part B B14 B14.2.3

Correction	Present	Note
The wording "items specified otherwise by the	The wording "items specified otherwise by the	Wording correction
Society" in 14.2.3-1, Part B of the Rules means surveys of	Society" in 14.2.3-1, Part B of the Rules means surveys of	therating correction
the tests specified the relevant requirements in 2.1.4, Part B	the tests specified the relevant requirements in 2.1.4, Part B	
of the Rules and 14.2.4-2, Part B of the Rules, and the	of the Rules and 14.2.4-2, and the wording "the Society may	
wording "the Society may approve other survey methods	approve other survey methods which it considers to be	
which it considers to be appropriate" means to be in	appropriate" means to be in accordance with <b>B2.1.4-1(2)</b> .	
accordance with B2.1.4-1(2).		

### Guidance for the survey and construction of steel ships Part B B15 B15.2.3-1

Correction	Present	Note
1 For the performance tests of the work-related	1 For the performance tests of the work-related	
installations of work-ships related to 15.2.3-1(1), Part B of	installations of work-ships related to 15.2.3-1(1), Part B of	
the Rules, the following tests are to be carried out. In cases	the Rules, the following tests are to be carried out. In cases	
where it is impractical to carry out such tests on board ship,	where it is impractical to carry out such tests on board ship,	
they may be replaced with examinations carried out at the	they may be replaced with examinations carried out at the	
place of manufacture in the presence of a Surveyor.	place of manufacture in the presence of a Surveyor.	
(1) Vessels engaged in towing operations	(1) Vessels engaged in towing operations	
(a) Confirmation that towing equipment is installed	(a) Confirmation that towing equipment is installed	
according to approved plans showing the	according to approved plans showing the	
arrangements of such equipment	arrangements of such equipment	
(b) Confirmation that towing equipment works well	(b) Confirmation that towing equipment works well	
(2) Fire Fighting Vessels	(2) Fire Fighting Vessels	
(a) Confirmation that fire fighting equipment is installed according to approved plans showing	(a) Confirmation that fire fighting equipment is installed according to approved plans showing	
the arrangements of such equipment	the arrangements of such equipment	
(b) Fire fighting equipment	(b) Fire fighting equipment	
i) Water monitor systems	i) Water monitor systems	
Confirmation that the range of each monitor	Confirmation that the range of each monitor	
is more than that specified in Table O6.4.2,	is more than that specified in Table O6.4.2	
Part O of the Guidance in cases where all	in cases where all fixed water monitors are in	
fixed water monitors are in simultaneous use	simultaneous use	
ii) Hoses and nozzles for fire fighting	ii) Hoses and nozzles for fire fighting	Wording correction
Confirmation that water jet flows are more	Confirmation that water jet flows are more	tt of anny correction
than 12 <i>m</i>	than 12 <i>m</i>	
iii) Mobile high expansion foam generators	iii) Mobile high expansion foam generators	
Confirmation that mobile high expansion	Confirmation that mobile high expansion	
foam generators work well	foam generators work well	
iv) Foam monitor systems	iv) Foam monitor systems	
Confirmation that the height of foam flow	Confirmation that the height of foam flow	
with all fixed foam monitors in simultaneous	with all fixed foam monitors in simultaneous	
use at maximum foam generation is more	use at maximum foam generation is more	
than 15m	than 15 <i>m</i>	

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	v) Water-spray systems		v) Water-spray systems	
	Confirmation that water-spray systems work		Confirmation that water-spray systems work	
	well		well	
(3)	Anchor handling vessels	(3)	Anchor handling vessels	
	(a) Confirmation that anchor handling equipment is		(a) Confirmation that anchor handling equipment is	
	installed according to approved plans showing		installed according to approved plans showing	
	the arrangements of such equipment		the arrangements of such equipment	
	(b) Confirmation that anchor handling equipment		(b) Confirmation that anchor handling equipment	
	works well		works well	
(4)	Vessels engaged in laying objects on the seabed	(4)	Vessels engaged in laying objects on the seabed	
	(a) Confirmation that laying equipment is installed		(a) Confirmation that laying equipment is installed	
	according to approved plans showing the		according to approved plans showing the	
	arrangements of such equipment		arrangements of such equipment	
	(b) Confirmation that laying equipment works well		(b) Confirmation that laying equipment works well	

#### Guidance for the survey and construction of steel ships Part C C1 C1.1.7-1

Correction	Present	Note
1 Where high tensile steel are used, the construction and	1 Where high tensile steel are used, the construction	
scantlings are to be determined in accordance with Annex	and scantlings are to be determined in accordance with	
C1.1.7 <u>-1</u> "GUIDANCE FOR HULL CONSTRUCTION	Annex C1.1.7 "GUIDANCE FOR HULL	Reference correction
CONTAINING HIGH TENSILE STEEL MEMBERS".	CONSTRUCTION CONTAINING HIGH TENSILE	
	STEEL MEMBERS".	

### Guidance for the survey and construction of steel ships Part C C1 C1.1.11-1

Correction	Present	Note
1 The ships referred to as "container carriers and other	1 The ships referred to as "container carriers and other	
than ships with similar hatch openings configuration" stated	than ships with similar hatch openings configuration" stated	
in the row for Strength deck at cargo hatch corner in the Deck	in the row for Strength deck at cargo hatch corner in the Deck	
Plating sections of Table C1.1 and <u>Table C1.2</u> , Part C of the	Plating sections of Table C1.1 and C1.2, Part C of the Rules,	Wording correction
<b>Rules</b> , are ships which have hatch openings over 0.7 <i>B</i> in width	are ships which have hatch openings over 0.7B in width at the	
at the midship part.	midship part.	

#### Guidance for the survey and construction of steel ships Part C C1 C1.1.11-4

Correction	Present	Note
4 The bilge strake prescribed in Note 4 of Table C1.1	4 The bilge strake prescribed in Note 4 of Table C1.1	
and Table C1.2, Part C of the Rules means a single strake of	and C1.2, Part C of the Rules means a single strake of the	XX7 1
the bilge keel in the longitudinal direction or where there is no	bilge keel in the longitudinal direction or where there is no	Wording correction
bilge keel, a single strake on the line extending longitudinally	bilge keel, a single strake on the line extending longitudinally	
forward and afterward of the bilge keel.	forward and afterward of the bilge keel.	

#### Guidance for the survey and construction of steel ships Part C C1 C1.1.11-5

Correction	Present	Note
5 Application of steels mentioned in Note 5 of Tables Table C1.1 and Table C1.2, Part C of the Rules is to be in accordance with Table C1.1.11-2.	5 Application of steels mentioned in Note 5 of Tables C1.1 and C1.2, Part C of the Rules is to be in accordance with Table C1.1.11-2.	Wording correction

## Guidance for the survey and construction of steel ships Part C C3 C3.4.1-4

Correction	Present	Note
4 Method of evaluating moments and forces (Type D	4 Method of evaluating moments and forces (Type D	
rudders with 2-conjugate elastic support)	rudders with 2-conjugate elastic support)	
For Type D rudders with 2-conjugate elastic supports by	For Type D rudders with 2-conjugate elastic supports by	
rudder horns, the method of evaluating moments and forces is	rudder horns, the method of evaluating moments and forces is	
to be as in (1) and (2) below.	to be as in (1) and (2) below.	
(1) General data	(1) General data	
$K_{11}, K_{22}, K_{12}$ : Rudder horn compliance constants	$K_{11}, K_{22}, K_{12}$ : Rudder horn compliance constants	
calculated for rudder horn with 2-	calculated for rudder horn with 2-	
conjugate elastic supports (Fig. C3.4.1-	conjugate elastic supports (Fig. C3.4.1-	
7). The 2-conjugate elastic supports are	7). The 2-conjugate elastic supports are	
defined in terms of horizontal	defined in terms of horizontal	
displacements, $y_i$ , by the following	displacements, $y_i$ , by the following	
equations:	equations:	
at the lower rudder horn bearing:	at the lower rudder horn bearing:	
$y_1 = -K_{12} B_2 - K_{22} B_1$	$y_1 = -K_{12}B_2 - K_{22}B_1$	
at the upper rudder horn bearing:	at the upper rudder horn bearing:	
$y_2 = -K_{11} B_2 - K_{12} B_1$	$y_2 = -K_{11} B_2 - K_{12} B_1$	
Where	Where	
$y_1, y_2$ : Horizontal displacements (m) at the	$y_1, y_2$ : Horizontal displacements (m) at the	
lower and upper rudder horn	lower and upper rudder horn	
bearings, respectively	bearings, respectively	
$B_1, B_2$ : Horizontal support forces (kN) at the	$B_1, B_2$ : Horizontal support forces (kN) at the	
lower and upper rudder horn	lower and upper rudder horn	
bearings, respectively	bearings, respectively	
$K_{11}, K_{22}, K_{12}$ : Obtained ( <i>m/kN</i> ) from the	$K_{11}, K_{22}, K_{12}$ : Obtained $(m/kN)$ from the	
following formulae:	following formulae:	
$K_{11} = 1.3 \cdot \frac{\lambda^3}{3EI_{1h}} + \frac{e^2\lambda}{GI_{th}}$	$K_{11} = 1.3 \cdot \frac{\lambda^3}{3EI_{1h}} + \frac{e^2\lambda}{GI_{th}}$	
$K_{11} = 1.3 \cdot \frac{1}{3EI_{1h}} + \frac{1}{GI_{th}}$	$K_{11} = 1.3 \cdot \frac{1}{3EI_{1h}} + \frac{1}{GI_{th}}$	

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$$K_{12} = 1.3 \left[ \frac{\lambda^3}{3EI_{1h}} + \frac{\lambda^2(d-\lambda)}{2EI_{1h}} \right] + \frac{e^2\lambda}{GI_{th}} K_{22} = 1.3 \left[ \frac{\lambda^3}{3EI_{1h}} + \frac{\lambda^2(d-\lambda)}{EI_{1h}} + \frac{\lambda(d-\lambda)^2}{EI_{1h}} + \frac{\lambda(d-\lambda)^2}{EI_{1h}} + \frac{(d-\lambda)^3}{3EI_{2h}} \right] + \frac{e^2d}{GI_{th}}$$

- d : Height of the rudder horn (m) defined in Fig.
   C3.4.1-7. This value is measured downwards from the upper rudder horn end, at the point of curvature transition, till the mid-line of the lower rudder horn pintle
- $\lambda$ : Length (*m*) as defined in Fig. C3.4.1-7. This length is measured downwards from the upper rudder horn end, at the point of curvature transition, till the mid-line of the upper rudder horn bearing. For  $\lambda = 0$ , the above formulae converge to those of spring constant Z for a rudder horn with 1-elastic support, and assuming a hollow cross section for this part
- *e* : Rudder-horn torsion lever (*m*) as defined in Fig. C3.4.1-7 (value taken at z = d/2)
- *I*<sub>1*h*</sub>: Moment of inertia of rudder horn about the *x* axis  $(m^4)$  for the region above the upper rudder horn bearing. Note that *I*<sub>1*h*</sub> is an average value over the length  $\lambda$  (see Fig. C3.4.1-7)
- $I_{2h}$ : Moment of inertia of rudder horn about the *x* axis  $(m^4)$  for the region between the upper and lower rudder horn bearings. Note that  $I_{2h}$  is an average

$$K_{12} = 1.3 \left[ \frac{\lambda^3}{3EI_{1h}} + \frac{\lambda^2(d-\lambda)}{2EI_{1h}} \right]$$
$$+ \frac{e^2\lambda}{GI_{th}}$$
$$K_{22} = 1.3 \left[ \frac{\lambda^3}{3EI_{1h}} + \frac{\lambda^2(d-\lambda)}{EI_{1h}} + \frac{\lambda(d-\lambda)^2}{EI_{1h}} + \frac{\lambda(d-\lambda)^2}{EI_{1h}} + \frac{(d-\lambda)^3}{3EI_{2h}} \right] + \frac{e^2d}{GI_{th}}$$

- d : Height of the rudder horn (m) defined in Fig.
   C3.4.1-7. This value is measured downwards from the upper rudder horn end, at the point of curvature transition, till the mid-line of the lower rudder horn pintle
- $\lambda$ : Length (*m*) as defined in Fig. C3.4.1-7. This length is measured downwards from the upper rudder horn end, at the point of curvature transition, till the mid-line of the upper rudder horn bearing. For  $\lambda = 0$ , the above formulae converge to those of spring constant Z for a rudder horn with 1-elastic support, and assuming a hollow cross section for this part
- *e* : Rudder-horn torsion lever (*m*) as defined in Fig. C3.4.1-7 (value taken at z = d/2)
- *I*<sub>1*h*</sub>: Moment of inertia of rudder horn about the *x* axis  $(m^4)$  for the region above the upper rudder horn bearing. Note that *I*<sub>1*h*</sub> is an average value over the length  $\lambda$  (see Fig. C3.4.1-7)
- $I_{2h}$ : Moment of inertia of rudder horn about the *x* axis  $(m^4)$  for the region between the upper and lower rudder horn bearings. Note that  $I_{2h}$  is an average

value over the length $d - \lambda$ (see Fig. C3.4.1-7) $I_{th}$ : Torsional stiffness factor of the rudder horn $(m^4)$ For any thin wall closed section	value over the length $d - \lambda$ (see Fig. C3.4.1-7) $I_{th}$ : Torsional stiffness factor of the rudder horn $(m^4)$ For any thin wall closed section	
$I_{th} = \frac{4F_T^2}{\sum_i \frac{u_i}{t_i}}$	$I_{th} = \frac{4F_T^2}{\sum_i \frac{u_i}{t_i}}$	
$F_T$ : Mean of areas enclosed by outer and inner boundaries of the thin walled section of rudder horn $(m^2)$	$F_T$ : Mean of areas enclosed by outer and inner boundaries of the thin walled section of rudder horn $(m^2)$	
<ul> <li><i>u<sub>i</sub></i> : Length (<i>mm</i>) of the individual plates forming the mean horn sectional area</li> <li><i>t<sub>i</sub></i> : Thickness (<i>mm</i>) of the individual plates</li> </ul>	<ul> <li><i>u<sub>i</sub></i>: Length (<i>mm</i>) of the individual plates forming the mean horn sectional area</li> <li><i>t<sub>i</sub></i>: Thickness (<i>mm</i>) of the individual plates</li> </ul>	
mentioned above. Note that the $I_{th}$ value is taken as an average value, valid over the rudder horn height.	mentioned above. Note that the $I_{th}$ value is taken as an average value, valid over the rudder horn height.	
<ul><li>(2) Direct calculation</li><li>The standard data to be used for direct calculation are as</li></ul>	<ul><li>(2) Direct calculation</li><li>The standard data to be used for direct calculation are as</li></ul>	
follows: Load acting on rudder body	follows: Load acting on rudder body	
$P_{R10} = \frac{F_{R2}}{1000l_{10}}  (kN/m)$	$P_{R10} = \frac{F_{R2}}{1000l_{10}}  (kN/m)$	
$P_{R20} = \frac{F_{R1}}{1000l_{20}} (kN/m)$	$P_{R20} = \frac{F_{R1}}{1000l_{20}} (kN/m)$	Wording correction
$F_R, F_{R1}, F_{R2}$ : As defined in 3.3.2, Part C of <u>the Rules</u>	$F_{R}, F_{R1}, F_{R2}$ : As defined in 3.3.2	

### Guidance for the survey and construction of steel ships Part C C3 C3.8.3-2

Correction	Present	Note
2 In the application of <b>3.8.3-5</b> , <u>Part C of the Rules</u> , the scantlings of the key are as follows in cases where all rudder torque is considered to be transmitted by the key at the couplings.	are as follows in cases where all rudder torque is considered	Wording correction
(1) The shear area $A_k$ of keys is not to be less than:	(1) The shear area $A_k$ of keys is not to be less than:	
$A_k = \frac{30T_R K_k}{d_k}  (mm^2)$	$A_k = \frac{30T_R K_k}{d_k} (mm^2)$	
Where:	Where:	
$d_k$ : Rudder stock diameter ( <i>mm</i> ) at the mid-point of length of the key	<i>d<sub>k</sub></i> : Rudder stock diameter ( <i>mm</i> ) at the mid-point of length of the key	
<i>K<sub>k</sub></i> : Material factor for the key as given in <b>3.1.2</b> , <b>Part</b> C of the Rules	<i>K<sub>k</sub></i> : Material factor for the key as given in <b>3.1.2</b> , <b>Part</b> C of the Rules	
<i>T<sub>R</sub></i> : Rudder torque obtained from <b>3.3</b> , <b>Part C</b> of the Rules	<i>T<sub>R</sub></i> : Rudder torque obtained from <b>3.3</b> , <b>Part</b> C of the Rules	
(2) The abutting surface area $A_c$ between the key and rudder stock or between the key and rudder body, respectively, is not to be less than:		
$A_c = \frac{10T_R K_{\max}}{d_k}  (mm^2)$	$A_c = \frac{10T_R K_{\max}}{d_k} \left(mm^2\right)$	
Where:	Where:	
<ul><li>Kmax: The greater of the material factors (given in 3.1.2, Part C of the Rules) between the rudder</li></ul>	3.1.2, Part C of the Rules) between the rudder	
stock and the key it is in contact with or the		
greater of the material factors between the rudder body and the key it is in contact with	greater of the material factors between the rudder body and the key it is in contact with	
$d_k$ and $T_R$ : As specified in (1)	$d_k$ and $T_R$ : As specified in (1)	

### Guidance for the survey and construction of steel ships Part C C3 C3.9.2-4

Correction	Present	Note
4 For the reaction force in bearing <i>B</i> specified in 3.9.2-		Wording correction
2, <u>Part C of the Rules</u> , for example, <i>B</i> <sub>1</sub> defined in Fig. C3.4.1-	<b>2</b> , for example, $B_1$ defined in <b>Fig. C3.4.1-4</b> is used for Type D	working correction
4 is used for Type D rudders.	rudders.	

### Guidance for the survey and construction of steel ships Part C C6 C6.1.1-7

Correction	Correction Present	
7 With respect to the provisions of 6.1.1-7, Part C of	7 With respect to the provisions of 6.1.1-7, Part C of	
the Rules, where the ratio of cargo weight per unit area	the Rules, where the ratio of cargo weight per unit area	
$(kN/m^2)$ of the inner bottom plating to d is less than 5.40,	$(kN/m^2)$ of the inner bottom plating to d is less than 5.40,	
double bottom structures are to be in accordance with	double bottom structures are to be in accordance with	
C6.2.3-1, C6.3.2-1, C6.5.1-2 and C6.5.65-1. Where cargo	C6.2.3-1, C6.3.2-1, C6.5.1-2 and C6.5.6-1. Where cargo	Reference correction
loads can not be treated as evenly distributed loads,	loads can not be treated as evenly distributed loads,	
scantlings of double bottom structures are to be determined by	scantlings of double bottom structures are to be determined by	
taking account of load distribution for particular cargoes.	taking account of load distribution for particular cargoes.	
Where concentrated loads act on specific points of double	Where concentrated loads act on specific points of double	
bottoms, scantlings of centre girders, side girders, floors, inner	bottoms, scantlings of centre girders, side girders, floors, inner	
bottom plates and bottom plates and their stiffeners are to be	bottom plates and bottom plates and their stiffeners are to be	
determined by an appropriate strength assessment such as	determined by an appropriate strength assessment such as	
direct calculations.	direct calculations.	

### Guidance for the survey and construction of steel ships Part C C10 C10.9.1-1

Correction	Present	Note
1 The section modulus of beams of decks loaded with wheeled vehicles (hereinafter referred to as "car decks") is not to be less than that obtained from the following formula. Where the span length or moment of inertia changes along the continuous beam, the scantlings of the beam are to be determined by direct strength calculation as specified in <b>10.9.1-2, Part C of the Rules</b> . $C_1C_2M$ ( $cm^3$ ) Where: $C_1: Coefficient determined as follows:C_1: 1.0 for b/S \le 0.8C_1: 1.25-0.31 b/S for b/S > 0.8Where:S:$ Beam spacing ( $m$ ) b: Length ( $m$ ) of wheel print measured at right angle to beams ( <i>See</i> Fig. C10.9.1-1) For vehicles with ordinary pneumatic tires, values in Table C10.9.1-1 may be used. $C_2:$ Coefficient determined from Table C10.9.1-2 $M: M_1, M_2$ and $M_{3j}$ obtained from the following formulae, whichever is the greatest ( $kN \cdot m$ ):	Present1The section modulus of beams of decks loaded with wheeled vehicles (hereinafter referred to as "car decks") is not to be less than that obtained from the following formula. Where the span length or moment of inertia changes along the continuous beam, the scantlings of the beam are to be determined by direct strength calculation as specified in 10.9.1-2. $C_1C_2M$ ( $cm^3$ ) Where: $C_1$ : Coefficient determined as follows: $C_1$ : 1.0 for $b/S \le 0.8$ $C_1$ : 1.25-0.31 $b/S$ for $b/S > 0.8$ Where: $S$ : Beam spacing ( $m$ ) $b$ : Length ( $m$ ) of wheel print measured at right angle to beams (See Fig. C10.9.1-1) For vehicles with ordinary pneumatic tires, values in Table C10.9.1-1 may be used. $C_2$ : Coefficient determined from Table C10.9.1-2 $M: M_1, M_2$ and $M_{3j}$ obtained from the following formulae, whichever is the greatest ( $kN \cdot m$ ):	Note Wording correction
For vehicles with ordinary pneumatic tires, values in Table C10.9.1-1 may be used. $C_2$ : Coefficient determined from Table C10.9.1-2 $M: M_1, M_2$ and $M_{3j}$ obtained from the following	<ul> <li>For vehicles with ordinary pneumatic tires, values in Table C10.9.1-1 may be used.</li> <li>C<sub>2</sub>: Coefficient determined from Table C10.9.1-2</li> <li>M: M<sub>1</sub>, M<sub>2</sub> and M<sub>3j</sub> obtained from the following</li> </ul>	
$+ \sum_{i=1}^{N_{II}} P_{IIJ} \alpha_{IIJ} \left( 1 - \frac{\alpha_{IIJ}}{l} \right) \left( 7 - 5 \frac{\alpha_{IIJ}}{l} \right) \\ - \sum_{k=1}^{N_{III}} P_{IIIk} \left( l - \alpha_{IIIk} \right) \left\{ 1 - \left( \frac{l - \alpha_{IIIk}}{l} \right)^2 \right\} \right]$	$+ \sum_{i=1}^{N_{II}} P_{IIJ} \alpha_{IIJ} \left(1 - \frac{\alpha_{IIJ}}{l}\right) \left(7 - 5\frac{\alpha_{IIJ}}{l}\right) \\ - \sum_{k=1}^{N_{III}} P_{IIIk} \left(l - \alpha_{IIIk}\right) \left\{1 - \left(\frac{l - \alpha_{IIIk}}{l}\right)^{2}\right\} \right]$	

Editorial Correction for Technical Rules and Guidance

$$M_{2} = \frac{1}{15} \left[ -\sum_{i=1}^{N_{l}} P_{ll} \alpha_{ll} \left\{ 1 - \left(\frac{\alpha_{ll}}{l}\right)^{2} \right\} \right]$$

$$+ \sum_{i=1}^{N_{ll}} P_{llj} \alpha_{llj} \left( 1 - \frac{\alpha_{llj}}{l} \right) \left( 2 + 5 \frac{\alpha_{llj}}{l} \right) \right]$$

$$+ \sum_{k=1}^{N_{ll}} 4P_{lllk} (l - \alpha_{lllk}) \left\{ 1 - \left(\frac{l - \alpha_{lllk}}{l}\right)^{2} \right\} \right]$$

$$M_{3l} = \left| R_{ll} \alpha_{lllj} - \sum_{r=0}^{l-1} P_{llr} (\alpha_{llj} - \alpha_{llr}) - \left(\frac{M_{2} - M_{1}}{l}\right) \alpha_{llj} - M_{1} \right|$$
Where:  

$$P_{ll0} = 0, \alpha_{ll0} = 0$$

$$l: \text{ Span } (m) \text{ of beam between support points}$$
Where the maximum design wheel load  $(kN)$  between support points  

$$Where \text{ there is a point are given in tons, the values of  $P_{ll}, P_{llj} \text{ and } P_{lllk} \text{ should be multiplied by 9.81 to convert them into  $kN$ . Subscript " $l_{l}$ " means the *i*th load point from left end of the *l*/th beam. Subscript " $l_{l}$ " means the *k*th load point from left end of the *l*/th beam. Subscript " $ll_{k}$ " means the *k*th load point from left end of the *l*/th beam. (See Fig. C10.9.1-2)$$$

$$M_{2} = \frac{1}{15} \left[ -\sum_{l=1}^{N_{l}} P_{ll} \alpha_{ll} \left\{ 1 - \left(\frac{\alpha_{ll}}{l}\right)^{2} \right\} + \sum_{l=1}^{N_{l}} P_{lll} \alpha_{lll} \left(1 - \frac{\alpha_{lll}}{l}\right) \left(2 + 5\frac{\alpha_{lll}}{l}\right) + \sum_{l=1}^{N_{ll}} 4P_{lllk} (l - \alpha_{lllk}) \left\{ 1 - \left(\frac{l - \alpha_{lllk}}{l}\right)^{2} \right\} \right]$$

$$M_{3j} = \left| R_{ll} \alpha_{lll} - \sum_{r=0}^{j-1} P_{llr} (\alpha_{lll} - \alpha_{llr}) - \left(\frac{M_{2} - M_{1}}{l}\right) \alpha_{lll} - M_{1} \right|$$
Where:
$$P_{ll0} = 0, \alpha_{ll0} = 0$$
*l*: Span (*m*) of beam between support points
$$P_{lli}, P_{IIj} \text{ and } P_{IIlk}: \text{Maximum design wheel load (kN) between support points
Where the maximum design wheel load (kN) between support points
Where the maximum design wheel load (kN) between support points
Where the maximum design wheel load (kN) between support points
Where the doads between support points
Where the maximum design wheel load (kN) between support points are given in tons, the values of P_{li}, P_{IIj} and P_{IIIk} should be multiplied by 9.81 to convert them into kN. Subscript "l,"
means the ith load point from left end of the lth beam. Subscript "lI,"
means the ith load point from left end of the lth beam. Subscript "lIIk" means the kth load point from left end of the lth beam. Subscript "lIIk" means the kth load point from left end of the lIth beam. Subscript "lIIk" means the kth load point from left end of the lIth beam. Subscript "lIIk" means the kth load point from left end of the lIth beam. Subscript "lIIk" means the kth load point from left end of the lIth beam. Subscript "lIIk" means the kth load point from left end of the lIth beam. Subscript "lIIk" means the kth load point from left end of the lIth beam. Subscript "lIIk" means the kth load point from left end of the lIth beam. Subscript "lIIk" means the kth load point from left end of the lIth beam. Subscript "lIIk" means the kth load point from left end of the lIth beam. Subscript "lIIk" means the kth load point from left end of the lIth beam. Subscript "lIIk" means the kth load point$$

$\alpha_{Ii}, \alpha_{IIj}$ and $\alpha_{IIIk}$ : Distance ( <i>m</i> ) from each support	$\alpha_{Ii}, \alpha_{IIj}$ and $\alpha_{IIIk}$ : Distance ( <i>m</i> ) from each support	
point to the point of action of	point to the point of action of	
wheel load (See Fig. C10.9.1-2),	wheel load (See Fig. C10.9.1-2),	
when wheels are so arranged that	when wheels are so arranged that	
M may be at its maximum value	M may be at its maximum value	
$N_I$ , $N_{II}$ and $N_{III}$ : Number of wheel loads between	$N_I$ , $N_{II}$ and $N_{III}$ : Number of wheel loads between	
each span	each span	
$R_{II}$ : The value obtained from following the	$R_{II}$ : The value obtained from following the	
formula	formula	
$R_{II} = \frac{1}{l} \sum_{j=1}^{N_{II}} P_{IIj} (l - \alpha_{IIj})$	$R_{II} = \frac{1}{l} \sum_{j=1}^{N_{II}} P_{IIj} (l - \alpha_{IIj})$	

## Guidance for the survey and construction of steel ships Part C C10 Table C10.9.2-1

Correction				Note			
Tabl	e C10.9.2-1 Method of	Fillet Weld <sup>(*4)</sup>		Table C10.9.2-1 Method of Fillet Weld <sup>(*4)</sup>			
	Deck panels on which vehicular traffic is frequent <sup>(*1)</sup>				Deck panels on which vehicular traffic is frequent <sup>(*1)</sup>	Panels other than those specified in the left column	
General type	F2 (Both sides or One side)	F4 or F2 (One side)	Ger	neral type	F2 (Both sides or One side)	F4 or F2 (One side)	
Channel type <sup>(*2)</sup>	F2 (Both sides)	F4	Cha	annel type <sup>(*2)</sup>	F2 (Both sides)	F4	
Channel type <sup>(*3)</sup>	F2 (Web side of stiffener flange)	F4 (Web side of stiffener flange)	Cha	annel type <sup>(*3)</sup>	F2 (Web side of stiffener flange)	F4 (Web side of stiffener flange)	
Notes:				Notes:			
<ul> <li>(* 1): Deck panels which are subject to the dynamic load in the vicinity of the ramp way and is on the route taken by vehicles when moving between decks</li> <li>(* 2): Channel type stiffeners as shown in Fig. C10.9.2-1, which are</li> </ul>			<ul> <li>(* 1): Deck panels which are subject to the dynamic load in the vicinity of the ramp way and is on the route taken by vehicles when moving between decks</li> <li>(* 2): Channel type stiffeners as shown in Fig.C10.9.2-1, which are</li> </ul>				
joined to the deck with spot-welds or intermittent welds (* 3): Channel type stiffeners as shown in Fig. C10.9.2-2, which are			joined to the deck with spot-welds or intermittent welds				
joined to the deck with a full penetration weld (* 4): "F2" and "F4" in this table is as specified in Table C1.4 <u>. Part</u> C of the Rules			(* 3): Channel type stiffeners as shown in Fig.C10.9.2-2, which are joined to the deck with a full penetration weld		Wording correction		
				(* 4): "F2" ;	and "F4" in this table is as speci	fied in Table C1.4	

## Guidance for the survey and construction of steel ships Part C C15 C15.2.2

	Correction		Present	Note
"Where the Society considers that the application of requirements of -1 above is inappropriate" stated in 15.2.2- 2, Part C of the Rules refers to cases in which the bending		"Where the Society considers that the application of requirements of -1 above is inappropriate" stated in 15.2.2- 2, Part C of the Rules refers to cases in which the bending		Wording correction
· · ·	h for the locations categorised in the following (1) to	-	h for the locations categorised in the following (1) to	
-	xamined. In these cases, the bending strength is to be	-	examined. In these cases, the bending strength is to be	
· ·	ordance with the requirement specified in 15.2.1-1,		ordance with the requirement specified in 15.2.1-1,	
Part C	of the Rules by using the coefficient C <sub>2</sub> obtained from	Part C	t of the Rules by using the coefficient $C_2$ obtained from	
the dot	ted line in Fig. C15.2, Part C of the Rules.	the dot	ted line in Fig. C15.2.	
(1)	Locations categorized in the following (a) to (d) for all ships:	(1)	Locations categorized in the following (a) to (d) for all ships:	
	<ul><li>(a) In way of the forward end of the engine room</li><li>(b) In way of the forward end of the foremost cargo hold</li></ul>		<ul><li>(a) In way of the forward end of the engine room</li><li>(b) In way of the forward end of the foremost cargo hold</li></ul>	
	<ul><li>(c) At any locations where there are significant changes in the hull cross-section</li><li>(d) At any locations where there are changes in the</li></ul>		<ul><li>(c) At any locations where there are significant changes in the hull cross-section</li><li>(d) At any locations where there are changes in the</li></ul>	
	framing system		framing system	
(2)	In addition to the locations specified in -(1) above,	(2)	In addition to the locations specified in -1 above,	
	locations categorized in the following (a) to (c) for		locations categorized in the following (a) to (c) for	
	ships with large deck openings. However, locations		ships with large deck openings. However, locations	
	categorized in (b) and (c) are for only those ships with cargo holds aft of the superstructure, deckhouse or		categorized in (b) and (c) are for only those ships with cargo holds aft of the superstructure, deckhouse or	
	engine room.		engine room.	
	<ul><li>(a) At or near to the aft and forward quarter length positions</li></ul>		<ul><li>(a) At or near to the aft and forward quarter length positions</li></ul>	
	(b) In way of the aft end of the aft-most holds		(b) In way of the aft end of the aft-most holds	
	(c) Aft end of the deckhouse or engine room		(c) Aft end of the deckhouse or engine room	
(3)	In addition to the locations specified in $-(1)$ and $-(2)$	(3)	In addition to the locations specified in -1 and -2	
	above, locations where deemed necessary by the		above, locations where deemed necessary by the	
	Society for those ships categorised in the following		Society for those ships categorised in the following	
	<ul><li>(a) and (b):</li><li>(a) Ships with a Cb of less than 0.7</li></ul>		<ul><li>(a) and (b):</li><li>(a) Ships with a Cb of less than 0.7</li></ul>	
	(a) Ships with a $C_b$ of less than 0.7		(a) Ships with a $C_b$ of less than 0.7	

(b) Ships whose longitudinal bending moments in	(b) Ships whose longitudinal bending moments in
still water at parts other than the midship part are	still water at parts other than the midship part are
equal to or greater than that at the midship part	equal to or greater than that at the midship part

## Guidance for the survey and construction of steel ships Part C C15 C15.3.2

Correction	Present	Note
Where Type $C$ , Type $D$ or Type $E$ ships specified in	Where Type $C$ , Type $D$ or Type $E$ ships specified in	Wording correction
Fig. C15.6, Part C of the Rules are provided with bilge	Fig. C15.6, Part C of the Rules are provided with bilge	wording correction
hoppers in the double hull, the values of $\alpha_2$ and R specified in	hoppers in the double hull, the values of $\alpha_2$ and R specified in	
C1515.3.2 in Part C of the Rules are to be construed as those	C15.3.2 in Part C of the Rules are to be construed as those	
tabulated in Table C15.3.2-1 in applying the rules, except	tabulated in Table C15.3.2-1 in applying the rules, except	
where the Society deems otherwise. However, the thickness of	where the Society deems otherwise. However, the thickness of	
the side shell plating and slant plates forming bilge hoppers is	the side shell plating and slant plates forming bilge hoppers is	
not to be less than 1.2 times the values determined by the	not to be less than 1.2 times the values determined by the	
requirements of the rules.	requirements of the rules.	

### Guidance for the survey and construction of steel ships Part C C23 C23.7.2-4

Correction	Present	Note
<b>4</b> For gas carriers, where gangways are provided sufficiently high above the freeboard deck or where permanently constructed arrangements achieve an equivalent level of safety, the Society may approve modifications to the provisions of -1 above. "Sufficiently high above the freeboard deck" means a vertical height of more than 3 times the standard superstructure height specified in Table V2.2.1-1-2. Part V of the Guidance.	permanently constructed arrangements achieve an equivalent level of safety, the Society may approve modifications to the provisions of -1 above. "Sufficiently high above the freeboard deck" means a vertical height of more than 3 times the	

### Guidance for the survey and construction of steel ships Part C C23 Table C23.7.2-1

Corr	ection		Prese	ent		Note
Table C23.7.2-1Protection of Crew on Exposed FreeboardDeck or Raised Quarter Deck for Tankers			Table C23.7.2-1Protection of Crew on Exposed FreeboardDeck or Raised Quarter Deck for Tankers			Wording correction
Location of access in Ship	Assigned Summer Freeboard	Acceptable arrangements according to type of freeboard assigned:	Location of access in Ship	Assigned Summer Freeboard	Acceptable arrangements according to type of freeboard assigned:	
<ul><li>2.1 Access to Bow</li><li>2.1.1 Between poop and bow</li><li>2.1.2 Between a deckhouse containing living accommodation or navigating</li></ul>	$\leq (Af + Hs)^*$	a e f 1) f 5)	<ul><li>2.1 Access to Bow</li><li>2.1.1 Between poop and bow</li><li>2.1.2 Between a deckhouse containing living accommodation or navigating</li></ul>	$\leq (Af + Hs)^*$	a e f 1) f 5)	
equipment or both, and bow 2.1.3 In the case of a flush deck vessel, between crew accommodation and the forward ends of ship	$> (Af + Hs)^*$	a e f 1) f 2)	equipment or both, and bow 2.1.3 In the case of a flush deck vessel, between crew accommodation and the forward ends of ship	$> (Af + Hs)^*$	a e f 1) f 2)	
2.2 Access to After End2.2.1 In the case of a flush deck vessel, between crew accommodation and the after end of shipAs required in 1.2.4 of TableC23.7.1-1 for other types of ships		<ul><li>2.2 Access to After End</li><li>2.2.1 In the case of a flush deck vessel, between crew accommodation and the after end of ship</li></ul>	-	a 1.2.4 of Table her types of ships		
<ul> <li>Notes:</li> <li>Af: Minimum summer freeboard calculated as type A ship regardless of the type of freeboard actually assigned</li> <li>Hs: Standard height of superstructure as defined in Table V2.2.1-1<sub></sub> Part V of the Guidance.</li> </ul>			Notes: <i>Af</i> : Minimum summer freeboard of the type of freeboard actually a <i>Hs</i> : Standard height of superstruct	assigned		

## Guidance for the survey and construction of steel ships Part C C27 C27.3.2-1

Correction	Present	Note
1 "Emergency towing arrangements approved by the Society" specified in 27.3.2-1, Part C of the Rules refer to	1 "Emergency towing arrangements approved by the Society" specified in 27.3.2-1, Part C of the Rules refer to	Wording correction
emergency towing arrangements that comply with the	emergency towing arrangements that comply with the	
requirements in $C27.3.2-2$ to $-13$ and the requirements	requirements in C27.3.2-2 to -13 and the requirements	
specified in the following $(1)$ or $(2)$ .	specified in the following $(1)$ or $(2)$ .	
(1) Where a prototype of the emergency towing	(1) Where a prototype of the emergency towing	
arrangement is arranged in the same manner as it is	arrangement is arranged in the same manner as it is	
to be installed on board the ship, the prototype test is	to be installed on board the ship, the prototype test is	
to be carried out in accordance with the requirements	to be carried out in accordance with the requirements	
specified in Chapter 6, Part 2 of <u>"the</u> Guidance for	specified in Chapter 6, Part 2 of "Guidance for the	
the Approval and Type Approval of Materials and	Approval and Type Approval of Materials and	
Equipment for Marine Use <sup>22</sup> and a production test of		
individual components is to be carried out in	individual components is to be carried out in	
accordance with the same requirements.	accordance with the same requirements.	
(2) Emergency towing arrangements are to comply with	(2) Emergency towing arrangements are to comply with	
the requirements specified in the following (a) to (c).	the requirements specified in the following (a) to (c).	
(a) Loose gear such as chafing gear or towing	(a) Loose gear such as chafing gear or towing	
pennants among the components listed in Table		
C27.3.2-1 and Table C27.3.2-2 are to be tested	C27.3.2-1 and Table C27.3.2-2 are to be tested	
according to the requirements of Part K or Part	C I	
L of the Rules or other standards deemed	L of the Rules or other standards deemed	
appropriate by the Society.	appropriate by the Society.	
(b) Fixed gear such as strong points and fairleads	(b) Fixed gear such as strong points and fairleads	
among the components listed in Table C27.3.2-1	among the components listed in Table C27.3.2-1	
are to be tested according to the requirements of	• •	
Part K or Part L of the Rules or other standards	Part K or Part L of the Rules or other standards	
deemed appropriate by the Society. A strength	deemed appropriate by the Society. A strength	
analysis of the foundations of these components	analysis of the foundations of these components	
and associated supporting structures including reinforced members is to be carried out	and associated supporting structures including reinforced members is to be carried out	
according to the conditions specified in C27.3.2-	according to the conditions specified in C27.3.2-	
3 and confirmation that these components have	3 and confirmation that these components have	
	5 and commination that these components have	

adequate strength corresponding to the type of	
emergency towing arrangements is to be made.	
Where the structural configuration of the	
arrangement is of a particularly complex or novel	
nature that a strength analysis cannot be	
satisfactorily carried out, a suitable load test	
deemed appropriate by the Society is to be carried	
out.	
(c) After the emergency towing arrangements are	
installed on board, it is to be demonstrated that	
the requirements specified in C27.3.2-11,	
C27.3.2-12 and C27.3.2-13 are satisfied.	
	<ul> <li>emergency towing arrangements is to be made.</li> <li>Where the structural configuration of the arrangement is of a particularly complex or novel nature that a strength analysis cannot be satisfactorily carried out, a suitable load test deemed appropriate by the Society is to be carried out.</li> <li>(c) After the emergency towing arrangements are installed on board, it is to be demonstrated that the requirements specified in C27.3.2-11,</li> </ul>

# Guidance for the survey and construction of steel ships Part C C29 C29.6.2-1

Correction		Present		Note
1	General	1	General	Wording correction
(1)	Where scantlings of girders (including plate members	(1)	Where scantlings of girders (including plate members	to oralling correction
	connected thereto) are determined by direct strength		connected thereto) are determined by direct strength	
	calculation, the necessary documents and data on the		calculation, the necessary documents and data on the	
	calculation method are to be submitted beforehand to		calculation method are to be submitted beforehand to	
	the Society for approval.		the Society for approval.	
(2)	Except where specifically provided for in this part,	(2)	Except where specifically provided for in this part,	
	strength calculations are to be in accordance with		strength calculations are to be in accordance with	
	Annex C1.1.22-1 "Guidance for Direct Strength		Annex C1.1.22-1 Guidance for Direct Strength	
	Calculation".		Calculation.	

## Guidance for the survey and construction of steel ships Part C C31 C31.5.2

Correction	Present	Note
With respect to the provisions of 31.5.2-5, Part C of	With respect to the provisions of 31.5.2-5, Part C of	
the Rules, construction of the upper stools is to meet the	the Rules, construction of the upper stools is to meet the	
following, unless the construction is examined by an adequate	following, unless the construction is examined by an adequate	
way such as direct calculation using $1/2 + 1 + 1 + 1/2$ holds models.	way such as direct calculation using $1/2 + 1 + 1 + 1/2$ holds models.	
$\sigma = \left  \left( \frac{w B_{CD}^2}{8} - M \right) \frac{10^3}{Z_{DK}} + \frac{F_{IB} - F_{SS}}{l_{DK} t_{DK}} \right  \le \frac{145}{K} \left( N/mm^2 \right)$	$\sigma = \left  \left( \frac{wB_{CD}^2}{8} - M \right) \frac{10^3}{Z_{DK}} + \frac{F_{IB} - F_{SS}}{l_{DK} t_{DK}} \right  \le \frac{145}{K} (N/mm^2)$	
$\tau = \left  \frac{wB_{CD}}{4 \left( h_{ST}(t_{ST} - 2.5) \right)} \right  \le \frac{70}{K} \left( N/mm^2 \right)$	$\tau = \left  \frac{wB_{CD}}{4 \left( h_{ST}(t_{ST} - 2.5) \right)} \right  \le \frac{70}{K} \left( N/mm^2 \right)$	
$w = \frac{(a_1 - a_3)a_5}{a_1a_4 - a_2a_3} w_1 \ (kN/m)$	$w = \frac{(a_1 - a_3)a_5}{a_1a_4 - a_2a_3} w_1 \ (kN/m)$	
$w_1 = \frac{(\alpha_{IB}^3 - 4\alpha_{IB}^2 + 8)}{5} \frac{F}{B} (kN/m)$	$w_1 = \frac{(\alpha_{IB}^3 - 4\alpha_{IB}^2 + 8)F}{5} (kN/m)$	
$w_2 = \frac{(a_2 - a_4)a_5}{a_2a_3 - a_1a_4} w_1 \ (kN/m)$	$w_2 = \frac{(a_2 - a_4)a_5}{a_2a_3 - a_1a_4} w_1 \ (kN/m)$	
$a_{1} = \frac{(1 - \alpha_{cD})^{2}}{(1 + \alpha_{cD})(5 - \alpha_{cD}^{2})} \left( (5 + 7\alpha_{cD}) + 2(1 - \alpha_{cD}) \frac{(1 - \alpha_{cD})(4\beta_{1} - 3\beta_{2}) + 4\alpha_{cD}\beta_{1}\left(\frac{l_{TST}}{l_{cD}}\right)}{(1 - \alpha_{cD}) + \alpha_{cD}\left(\frac{l_{TST}}{l_{cD}}\right)} \left( \frac{l_{IB}}{l_{TST}} \right) \right)$	$a_{1} = \frac{(1 - \alpha_{CD})^{2}}{(1 + \alpha_{CD})(5 - \alpha_{CD}^{-2})} \left( (5 + 7\alpha_{CD}) + 2(1 - \alpha_{CD}) \frac{(1 - \alpha_{CD})(4\beta_{1} - 3\beta_{2}) + 4\alpha_{CD} \beta_{1} \left(\frac{l_{TST}}{l_{CD}}\right)}{(1 - \alpha_{CD}) + \alpha_{CD} \left(\frac{l_{TST}}{l_{CD}}\right)} \left(\frac{l_{IB}}{l_{TST}}\right) \right)$	
$a_{2} = \frac{2\alpha_{CD}}{(1 + \alpha_{CD})(5 - \alpha_{CD}^{2})} \left( 4(1 + \alpha_{CD} - \alpha_{CD}^{2}) + (1 - \alpha_{CD})\frac{(1 - \alpha_{CD})^{2} + 2\alpha_{CD}(2 - 3\alpha_{CD})\left(\frac{I_{TST}}{I_{CD}}\right)}{(1 - \alpha_{CD}) + \alpha_{CD}\left(\frac{I_{TST}}{I_{CD}}\right)} \left(\frac{I_{IB}}{I_{TST}}\right) \right)$	$a_{2} = \frac{2\alpha_{CD}}{(1 + \alpha_{CD})(5 - \alpha_{CD}^{-2})} \left( 4(1 + \alpha_{CD} - \alpha_{CD}^{-2}) + (1 - \alpha_{CD})\frac{(1 - \alpha_{CD})^{2} + 2\alpha_{CD}(2 - 3\alpha_{CD})\left(\frac{l_{TCT}}{l_{CD}}\right)}{(1 - \alpha_{CD}) + \alpha_{CD}\left(\frac{l_{TST}}{l_{CD}}\right)} \left(\frac{l_{IB}}{l_{TST}}\right) \right)$	
$a_3 = \frac{6(1 - \alpha_{CD})^2}{(6 - \alpha_{CD}^2)} \left( 1 + \frac{4\alpha_{CD}\beta_2}{(1 - \alpha_{CD}) + \alpha_{CD} \left(\frac{I_{TST}}{I_{CD}}\right)} \left(\frac{I_{IB}}{I_{CD}}\right) \right)$	$a_{3} = \frac{6(1 - \alpha_{cD})^{2}}{(6 - \alpha_{cD}^{2})} \left( 1 + \frac{4\alpha_{cD}\beta_{2}}{(1 - \alpha_{cD}) + \alpha_{cD} \left(\frac{I_{TST}}{I_{cD}}\right)} \left(\frac{I_{IB}}{I_{CD}}\right) \right)$	
$a_{4} = \frac{\alpha_{CD}}{(6 - \alpha_{CD}^{2})} \left( 12 - 7\alpha_{CD} + \frac{(1 - \alpha_{CD})(6 - \alpha_{CD}) + \alpha_{CD}^{2} \left(\frac{I_{TST}}{I_{CD}}\right)}{(1 - \alpha_{CD}) + \alpha_{CD} \left(\frac{I_{TST}}{I_{CD}}\right)} \left(\frac{I_{IB}}{I_{CD}}\right) \right)$	$a_{4} = \frac{\alpha_{CD}}{(6 - \alpha_{CD})^{2}} \left( 12 - 7\alpha_{CD} + \frac{(1 - \alpha_{CD})(6 - \alpha_{CD}) + \alpha_{CD}^{2} \left(\frac{I_{TST}}{I_{CD}}\right)}{(1 - \alpha_{CD}) + \alpha_{CD} \left(\frac{I_{TST}}{I_{CD}}\right)} \left(\frac{I_{IB}}{I_{CD}}\right) \right)$	
$a_5 = \sqrt{\frac{I_{CD}}{I_{IB}}}$ , however, $a_5$ does not need to be	$a_5 = \sqrt{\frac{I_{CD}}{I_{IB}}}$ , however, $a_5$ does not need to be	
greater than 1.	greater than 1.	

$M = \frac{B^2}{24}$	$\frac{\frac{-3(1-\alpha_{CD})^{3}\beta_{2}w_{2}+\alpha_{CD}\left(2\alpha_{CD}^{2}\left(\frac{I_{TST}}{I_{CD}}\right)-3(1-\alpha_{CD})^{2}\right)w}{(1-\alpha_{CD})+\alpha_{CD}\left(\frac{I_{TST}}{I_{CD}}\right)}\left(kN-m\right)$
	$\frac{B^3}{8h_{SH}^2} \frac{I_{SH}}{I_{IB}} (2w_1 - (2 - \alpha_{CD})(3 - \alpha_{CD})) + (2 - \alpha_{CD}) + (2 - \alpha_$
$\alpha_{CD}^{2}$	$\left(w\right)w_2 - \alpha_{CD}(3 - \alpha_{CD}^2)w\right)(kN)$
Howe	ever, $F_{ID}$ is not to be less than 0.

However,  $F_{IB}$  is not to be less than 0.  $F_{SS} = 5l_{Hold}(d + 0.026L' - h_{SS})^2 (kN)$ However,  $F_{SS}$  is to be 0 in loaded condition.

 $\beta_1$  and  $\beta_2$  are to be as follows.

- (1) Where a bulkhead, a solid floor or a similar structure is provided in the same plane as the transverse bulkhead within the topside tank,  $\beta_1$  is to be taken as 3/8 and  $\beta_2$  is to be taken as 1/3.
- (2) Where a bulkhead, a solid floor or a similar structure is not provided in the same plane as the transverse bulkhead within the topside tank,  $\beta_1$  and  $\beta_2$  are to be the ratio of the horizontal distance between the inner end of the topside tank and the centre of the opening in the transverse ring within the topside tank, to the breadth of the topside tank.
- $Z_{DK}$ : Section modulus (*cm*<sup>3</sup>) of the upper stool structure about the ship longitudinal axis at deck side
- $t_{DK}$ : The thickness (*mm*) of deck plating inside the line of openings
- $l_{DK}$ : The length (*m*) of the deck inside the line of openings
- $t_{ST}$ : The thickness (*mm*) of the sloping plating of upper stool
- $h_{ST}$ : The height (*m*) of upper stool

$$M = \frac{\mu^2}{24} \frac{-3(1-\alpha_{CD})^3 \beta_2 w_2 + \alpha_{CD} \left(2\alpha_{CD}^2 \left(\frac{1\pi_{CD}}{1-\alpha_{CD}}\right)^{-3} (1-\alpha_{CD})^2\right)^w}{(1-\alpha_{CD}) + \alpha_{CD} \left(\frac{1\pi_{CD}}{1-\alpha_{CD}}\right)^2} (kN-m)$$

$$F_{IB} = \frac{B^3}{8h_{SH}^2} \frac{I_{SH}}{I_{IB}} \left(2w_1 - \left(2 - \alpha_{CD}(3 - \alpha_{CD}^2)\right)w_2 - \alpha_{CD}(3 - \alpha_{CD}^2)w\right) (kN)$$
However,  $F_{IB}$  is not to be less than 0.  
 $F_{SS} = 5l_{Hold}(d + 0.026L' - h_{SS})^2 (kN)$ 
However,  $F_{SS}$  is to be 0 in loaded condition.  
 $\beta_1$  and  $\beta_2$  are to be as follows.  
(1) Where a bulkhead, a solid floor or a similar structure is provided in the same plane as the transverse bulkhead within the topside tank,  $\beta_1$  is to be taken as  $3/8$  and  $\beta_2$  is to be taken as  $1/3$ .  
(2) Where a bulkhead, a solid floor or a similar structure is not provided in the same plane as the transverse bulkhead within the topside tank,  $\beta_1$  and  $\beta_2$  are to be the ratio of the horizontal distance between the inner end of the topside tank and the centre of the opening in the transverse ring within the topside tank, to the breadth of the topside tank.

	o oreducin of the topside tunk.
$Z_{DK}$ :	Section modulus $(cm^3)$ of
the	upper stool structure about the ship
longi	itudinal axis at deck side
$t_{DK}$ : The t	hickness ( <i>mm</i> ) of deck plating inside the
line c	of openings
$l_{DK}$ : The l	length ( <i>m</i> ) of the deck inside the line of
open	ings
$t_{ST}$ : The t	thickness ( <i>mm</i> ) of the sloping plating of
upper	r stool

 $h_{ST}$ : The height (*m*) of upper stool

- $h_{SH}$ : The vertical distance (m) between the bottom of topside tank and the top of bilge hopper tank
- $h_{ss}$ : The vertical distance (*m*) from the base line to the centre of the side structure between the topside tank and the bilge hopper tank
- $l_{Hold}$ : The average length (m) of after and forward cargo holds of the transverse bulkhead
- F: As specified in C31.5.1 (kN) However, where bottom pressure is greater than internal pressure such as those acting on the double bottoms of empty holds, F is to be corrected to a negative value.

$$\alpha_{IB} = \frac{B_{IB}}{B}$$
$$\alpha_{CD} = \frac{B_{CD}}{B}$$

- $B_{IB}$ : The horizontal distance (m) between the inner end of bilge hopper tanks
- $B_{CD}$ : The breadth (m) of the deck inside the line of openings
- $I_{IB}$ : The moment of inertia ( $cm^4$ ) of the double bottom structure and lower stool structure about the ship's longitudinal axis Only the part of the double bottom just under
- the lower stool needs to be taken into consideration.  $I_{TST}$ : The moment of inertia (*cm*<sup>4</sup>) of the topside tank structure about the ship's longitudinal
  - axis at the midpoint of the breadth of the topside tanks The deck plating and the sloping plating

within the area 0.1 times the breadth of the

- $h_{SH}$ : The vertical distance (m) between the bottom of topside tank and the top of bilge hopper tank
- $h_{ss}$ : The vertical distance (m) from the base line to the centre of the side structure between the topside tank and the bilge hopper tank
- The average length (m) of after and  $l_{Hold}$ : forward cargo holds of the transverse bulkhead
- F: As specified in C31.5.1 (kN) However, where bottom pressure is greater than internal pressure such as those acting on the double bottoms of empty holds, F is to be corrected to a negative value.

 $\alpha_{IB} = \frac{B_{IB}}{R}$  $\alpha_{CD} = \frac{B_{CD}}{B}$ 

- $B_{IB}$ : The horizontal distance (m) between the inner end of bilge hopper tanks
- $B_{CD}$ : The breadth (m) of the deck inside the line of openings
- $I_{IB}$ : The moment of inertia ( $cm^4$ ) of the double bottom structure and lower stool structure about the ship's longitudinal axis Only the part of the double bottom just under the lower stool needs to be taken into consideration.  $I_{TST}$ : The moment of inertia (*cm*<sup>4</sup>) of the topside tank structure about the ship's longitudinal

axis at the midpoint of the breadth of the topside tanks The deck plating and the sloping plating within the area 0.1 times the breadth of the

1	l and after the transverse		topside tank forward and after the transverse	
•	ten into consideration.		bulkhead may be taken into consideration.	
$I_{CD}$ : The moment of iner	rtia $(cm^4)$ of upper stool	<i>I<sub>CD</sub></i> :	The moment of inertia $(cm^4)$ of upper stool	
structure about the sl	hip's longitudinal axis at		structure about the ship's longitudinal axis at	
the ship's centre line	2		the ship's centre line	
The deck plating w	within the area 0.1 <i>times</i>		The deck plating within the area 0.1 times	
$B_{CD}$ forward and	after the transverse		$B_{CD}$ forward and after the transverse	
bulkhead may be tak	ten into consideration.		bulkhead may be taken into consideration.	
$I_{SH}$ : The moment of inert	tia $(cm^4)$ of side structure	I <sub>SH</sub> :	The moment of inertia $(cm^4)$ of side structure	
around the transver	rse bulkhead about the		around the transverse bulkhead about the	
ship's longitudinal a	xis		ship's longitudinal axis	
The side shell plat	ing within the area 0.1		The side shell plating within the area 0.1	
times hsh forward a	and after the transverse		times h <sub>SH</sub> forward and after the transverse	
bulkhead, a single	strake of the bulkhead		bulkhead, a single strake of the bulkhead	
plating including pla	ating deemed as its face		plating including plating deemed as its face	
plate, and the trun	k construction may be		plate, and the trunk construction may be	
taken into considerat	tion.		taken into consideration.	
K: As specified in 1.2.1	1-2(2) of Annex C1.1.7 <u>-</u>	K:	As specified in 1.2.1-2(2) of Annex C1.1.7	Reference correction
<u>1</u> "GUIDANCI	E FOR HULL		<b>"GUIDANCE FOR HULL</b>	
CONSTRUCTION	CONTAINING HIGH		<b>CONSTRUCTION CONTAINING HIGH</b>	
TENSILE STEEL M	IEMBERS"		<b>TENSILE STEEL MEMBERS"</b>	

#### Guidance for the survey and construction of steel ships Part C C31 C31.5.2-1

Correction	Present	Note
1 The weight of the water in a flooded hold is to be	1 The weight of the water in a flooded hold is to be	Wording correction
calculated in accordance with C31A31A.5.2-2, Part C of the	calculated in accordance with C31A.5.2-2, Part C, at the	therating correction
<u><b>Rules</b></u> , at the water level of the equilibrium water line with the	water level of the equilibrium water line with the assumption	
assumption that each cargo hold is individually flooded. In this	that each cargo hold is individually flooded. In this case, the	
case, the loaded cargo may be taken to be level. The	loaded cargo may be taken to be level. The equilibrium water	
equilibrium water line is the water level that is below the	line is the water level that is below the lower edge of any	
lower edge of any opening through which progressive	opening through which progressive flooding may take place,	
flooding may take place, after taking into account sinkage,	after taking into account sinkage, heel, and trim.	
heel, and trim.		

### Guidance for the survey and construction of steel ships Part C C31 C31.5.2-2

Correction	Present	Note
2 The loading condition prescribed in <u>31A531A.5.1-</u>		Wording correction
2(2)) through (4), Part C of the Rules refers to cases where	through (4), Part C of the Rules refers to cases where the ship	working correction
the ship carries bulk cargoes having a density of not less than	carries bulk cargoes having a density of not less than 1.0	
$1.0 (ton/m^3).$	$(ton/m^3).$	

## Guidance for the survey and construction of steel ships Part C C32 C32.2.8-2

Correction	Present	Note
2 "The method which is separately specified by the	2 "The method which is separately specified by the	Reference correction
Society" to calculate $M_{U_{DB}}(kN-m)$ specified in 32.2.8-2, Part	Society" to calculate $M_{U_{DB}}(kN-m)$ specified in 32.2.8-2, Part	
C of the Rules refers to the method specified in Annex	C of the Rules refers to the method specified in Annex	
C32.2.8-21 "GUIDANCE FOR THE HULL GIRDER	C32.2.8-2 "GUIDANCE FOR THE HULL GIRDER	
ULTIMATE STRENGTH ASSESSMENT CONSIDERING	ULTIMATE STRENGTH ASSESSMENT	
THE EFFECT OF LATERAL LOADS".	CONSIDERING THE EFFECT OF LATERAL LOADS".	

## Guidance for the survey and construction of steel ships Part C C32 Table C32.9.1-1

	Correction		Present	Note
	1 Formulae which can be Substituted for by Direct Strength Calculations	Table C32.9.1-	1 Formulae which can be Substituted for by Direct Strength Calculations	Wording correction
Part C of the Rules	formulae	Part C of the Rules	formulae	
32.4.4-1	the first formula of the formulae for the thickness of inner bottom plating	32.4.4-1	the first formula of the formulae for the thickness of inner bottom plating	
32.4.5-1	the first formula of the formulae for the thickness of bottom shell plating	32.4.5-1	the first formula of the formulae for the thickness of bottom shell plating	
32.5.2-1	the formulae for the thickness of side transverse girders	32.5.2-1	the formulae for the thickness of side transverse girders	
32.5.2-2	the formulae for the thickness of side stringers	32.5.2-2	the formulae for the thickness of side stringers	
32.7.1(1 <u>))</u>	the formula for the thickness of decks inside the line of deck openings	32.7.1(1)	the formula for the thickness of decks inside the line of deck openings	
32.7.1(2 <u>))</u>	the formula for the section modulus of decks inside the line of deck openings	32.7.1(2)	the formula for the section modulus of decks inside the line of deck openings	
32.7.1(3 <u>)</u> )	the formula for the moments of inertia of decks inside the line of deck openings	32.7.1(3)	the formula for the moments of inertia of decks inside the line of deck openings	
6.2.3(1) and (2))	the formulae for the thicknesses of centre girder plates and side girder plates	6.2.3(1) and (2)	the formulae for the thicknesses of centre girder plates and side girder plates	
6.3.2(1) and (2))	the formulae for the thickness of solid floors	6.3.2(1) and (2)	the formulae for the thickness of solid floors	

## Guidance for the survey and construction of steel ships Part C C35 C35.2.3-6

Correction	Present	Note
<ul> <li>6 With respect to the provisions of 35.2.3-4(2)(,_), (4),</li> <li>(3) and (7), Part C of the Rules, adjacent sections of a vertical ladder are to be in accordance with following (1) to (3). (Refer to Fig. C35.2.3-1, Fig. C35.2.3-2 and Table C35.2.3)</li> <li>(1) The minimum "lateral offset" between two adjacent sections of a vertical ladder is the distance between</li> </ul>	6 With respect to the provisions of 35.2.3-4(2), (4), -5(3) and (7), Part C of the Rules, adjacent sections of a vertical ladder are to be in accordance with following (1) to (3). (Refer to Fig. C35.2.3-1, Fig. C35.2.3-2 and Table C35.2.3)	Wording correction
<ul> <li>the sections, upper and lower, so that the adjacent stringers are spaced at least 200 mm apart, measured from half thickness of each stringer.</li> <li>(2) Adjacent sections of vertical ladder are to be installed so that the upper end of the lower section is vertically overlapped, in respect to the lower end of the upper section, to a height of 1,500 mm in order to permit a safe transfer between ladders. However, this requirement does not apply to cases where structural members (e.g. side stringers) are used to move between adjacent vertical ladders and are provided with safety measures such as handrails.</li> <li>(3) No section of the access ladder is to be terminated directly or partly above an access opening.</li> </ul>	<ol> <li>The minimum "lateral offset" between two adjacent sections of a vertical ladder is the distance between the sections, upper and lower, so that the adjacent stringers are spaced at least 200 mm apart, measured from half thickness of each stringer.</li> <li>Adjacent sections of vertical ladder are to be installed so that the upper end of the lower section is vertically overlapped, in respect to the lower end of the upper section, to a height of 1,500 mm in order to permit a safe transfer between ladders. However, this requirement does not apply to cases where structural members (e.g. side stringers) are used to move between adjacent vertical ladders and are provided with safety measures such as handrails.</li> <li>No section of the access ladder is to be terminated directly or partly above an access opening.</li> </ol>	

## Guidance for the survey and construction of steel ships Part C Annex C1.1.22-1 1.2.1-1

Correction			Present	Note
1	Classification of Loads	1	Classification of Loads	Wording correction
(1)	The loads due to the longitudinal bending moment of	(1)	The loads due to the longitudinal bending moment of	woranig correction
	hull girders at the forward and aft end boundaries of		hull girders at the forward and aft end boundaries of	
	the structure model may, as a rule, not be taken into		the structure model may, as a rule, not be taken into	
	consideration. When these loads are taken into		consideration. When these loads are taken into	
	consideration, however, the allowable stress to be		consideration, however, the allowable stress to be	
	applied to the results of calculations is to be		applied to the results of calculations is to be	
	determined as deemed appropriate by the Society.		determined as deemed appropriate by the Society.	
(2)	The design loads to be taken into consideration are, as	(2)	The design loads to be taken into consideration are, as	
	a rule, to be the loads due to cargo and water ballast		a rule, to be the loads due to cargo and water ballast	
	loaded on board, hydrostatic pressure and wave loads.		loaded on board, hydrostatic pressure and wave loads.	
(3)	The load due to the inertial force of cargo is to be	(3)	The load due to the inertial force of cargo is to be	
	considered in addition to those specified in (2) above,		considered in addition to those specified in (2) above,	
	when the Society considers it is necessary.		when the Society considers it is necessary.	
(4)	Special consideration is to be made for cargo holds	(4)	Special consideration is to be made for cargo holds	
	where dynamic impact loads such as sloshing loads		where dynamic impact loads such as sloshing loads	
	are predicted, and proper data in this regard is to be		are predicted, and proper data in this regard is to be	
	submitted.		submitted.	
(5)	The loads for oil tankers, ore carriers and bulk carriers	(5)	The loads for oil tankers, ore carriers and bulk carriers	
	are to be in accordance with the requirements		are to be in accordance with the requirements	
	specified in C29.6.2 of, C30.1.2 and C31.1.5 of the		specified in C29.6.2, C30.1.2 and C31.1.5 of the	
	Guidance respectively, in addition to those found		Guidance respectively, in addition to those found here	
	here in 1.2. When deemed necessary by the Society,		in 1.2. When deemed necessary by the Society, other	
	other loading conditions described in the Loading		loading conditions described in the Loading Manual	
	Manual are also to be considered.		are also to be considered.	

### Guidance for the survey and construction of steel ships Part C Annex C15.2.1 1.2.1-1

Correction	Present	Note
1 Ships intending to operate with partially filled ballast	1 Ships intending to operate with partially filled ballast	
tanks are required to be designed so as to comply with the	tanks are required to be designed so as to comply with the	
requirements of hull girder strength specified in 32.2, Part C	requirements of hull girder strength specified in 32.2, Part C	
of the Rules for ships subject to the requirements in Chapter	of the Rules for ships subject to the requirements in Chapter	
32, Part C of the Rules and Chapter 15, Part C of the Rules,	32, Part C of the Rules and Chapter 15, Part C of the Rules,	
when the ballast tanks are full and when they are empty. For	when the ballast tanks are full and when they are empty. For	
this purpose, compliance with the hull girder strength	this purpose, compliance with the hull girder strength	
requirements of 32.2, Part C of the Rules for ships subject to	requirements of 32.2, Part C of the Rules for ships subject to	
the requirements in Chapter 32, Part C of the Rules and	the requirements in Chapter 32, Part C of the Rules and	
Chapter 15, Part C of the Rules is to be assessed for	Chapter 15, Part C of the Rules is to be assessed for	
conditions just before and just after such	conditions just before and just after such	
ballasting/deballasting operation is conducted, for partially	ballasting/deballasting operation is conducted, for partially	
filled conditions, as well as when such ballast tanks are	filled conditions, as well as when such ballast tanks are	
assumed empty or full. (Refer to C15.2.1(4).)). Part C of the	assumed empty or full. (Refer to C15.2.1(4).)	Wording correction
<u>Guidance.)</u>		, or any correction

#### Guidance for the survey and construction of steel ships Part C Annex C15.2.1 1.2.1-1

Correction	Present	Note
2 Notwithstanding the provisions of -1 above, for ore	2 Notwithstanding the provisions of -1 above, for ore	
carriers defined in 1.3.1(13)(b), Part B of the Rules, tank	carriers defined in 1.3.1(13)(b), Part B of the Rules, tank	
levels of "empty and full" referred to in -1 above may be	levels of "empty and full" referred to in -1 above may be	
modified according to C15.2.1(6)-), Part C of the Guidance.	modified according to C15.2.1(6).	Wording correction

## Guidance for the survey and construction of steel ships Part C Annex C15.2.1 1.2.1-3

Correction	Present	Note
<b>3</b> For ships intending to ballast/deballast during the	3 For ships intending to ballast/deballast during the	
voyage, loading conditions corresponding to all steps of the	voyage, loading conditions corresponding to all steps of the	
ballasting/deballasting operation are to be included in the	ballasting/deballasting operation are to be included in the	
ships' loading manuals as intermediate conditions which are	ships' loading manuals as intermediate conditions which are	
part of the standard loading conditions. For this purpose,	part of the standard loading conditions. For this purpose,	
"step" is a condition just before and just after a	"step" is a condition just before and just after a	
ballasting/deballasting operation for each tank. Such	ballasting/deballasting operation for each tank. Such	
intermediate conditions are to be assessed in compliance with	intermediate conditions are to be assessed in compliance with	
the requirements of <b>32.2</b> , <b>Part</b> C of the Rules for ships subject	the requirements of <b>32.2</b> , <b>Part C of the Rules</b> for ships subject	
to the requirements in Chapter 32, Part C of the Rules and	to the requirements in Chapter 32, Part C of the Rules and	
Chapter 15, Part C of the Rules. (Refer to 1.3.1-2 of Annex	Chapter 15, Part C of the Rules. (Refer to 1.3.1-2 of Annex	TTT 1.
C34.1.2 and C15.2.1(4)), Part C of the Guidance)	C34.1.2 and C15.2.1(4))	Wording correction

## Guidance for the survey and construction of steel ships Part C Annex C15.2.1 1.2.1-6

Correction	Present	Note
6 Examples of relationships between loading conditions specified in the ships' loading manuals and those for the assessment of hull girder strength are given as the following	6 Examples of relationships between loading conditions specified in the ships' loading manuals and those for the assessment of hull girder strength are given as the following	Wording correction
(1) to (4).	(1) to (4).	
(1) Where no ballast tank is partially filled	(1) Where no ballast tank is partially filled	
For example, when loading conditions as shown in (a)	For example, when loading conditions as shown in (a)	
are deemed as standard loading conditions, additional	are deemed as standard loading conditions, additional	
conditions are not required to be assessed.	conditions are not required to be assessed.	
(a) Loading conditions specified in the ship's loading manual	(a) Loading conditions specified in the ship's loading manual	
i) Departure (Consumables: 100%, No.6 WBT(P/S): 0%)	i) Departure (Consumables: 100%, No.6 WBT(P/S): 0%)	
ii) Intermediate condition 1 (Consumables: 50%, No.6 WBT(P/S): 0%)	ii) Intermediate condition 1 (Consumables: 50%, No.6 WBT(P/S): 0%)	
iii) Intermediate condition 2 (Consumables: 50%, No.6 WBT(P/S): 100%)	iii) Intermediate condition 2 (Consumables: 50%, No.6 WBT(P/S): 100%)	
iv) Arrival (Consumables: 10%, No.6 WBT(P/S): 100%)	iv) Arrival (Consumables: 10%, No.6 WBT(P/S): 100%)	
(2) Where ballasting/deballasting operations are permitted anytime during the voyage	(2) Where ballasting/deballasting operations are permitted anytime during the voyage	
For example, when loading conditions as shown in (a)	For example, when loading conditions as shown in (a)	
are deemed standard loading conditions, additional	are deemed standard loading conditions, additional	
conditions such as in (b) are required to be assessed.	conditions such as in (b) are required to be assessed.	
(a) Loading conditions specified in the ship's	(a) Loading conditions specified in the ship's	
loading manual	loading manual	
i) Departure (Consumables: 100%, No.6 WBT(P/S): 0%)	i) Departure (Consumables: 100%, No.6 WBT(P/S): 0%)	
ii) Intermediate condition 1 (Consumables: 50%, No.6 WBT(P/S): 0%)	ii) Intermediate condition 1 (Consumables: 50%, No.6 WBT(P/S): 0%)	
iii) Intermediate condition 2 (Consumables: 50%, No.6 WBT(P/S): 60%)	iii) Intermediate condition 2 (Consumables: 50%, No.6 WBT(P/S): 60%)	
iv) Intermediate condition 3 (Consumables:	iv) Intermediate condition 3 (Consumables:	

20%, No.6 WBT(P/S): 60%)	20%, No.6 WBT(P/S): 60%)	
v) Intermediate condition 4 (Consumables:	v) Intermediate condition 4 (Consumables:	
20%, No.6 WBT(P/S): 100%)	20%, No.6 WBT(P/S): 100%)	
vi) Arrival (Consumables: 10%, No.6	vi) Arrival (Consumables: 10%, No.6	
WBT(P/S): 100%)	WBT(P/S): 100%)	
(b) Additional loading conditions for the assessment	(b) Additional loading conditions for the assessment	
of hull girder strength are to be as follows.	of hull girder strength are to be as follows.	
Conditions ii) and iii) may be guaranteed by the	Conditions ii) and iii) may be guaranteed by the	
assessment of conditions i) and iv) respectively,	assessment of conditions i) and iv) respectively,	
however it should be determined on a case by	however it should be determined on a case by	
case basis.	case basis.	
i) Departure (Consumables: 100%, No.6	i) Departure (Consumables: 100%, No.6	
WBT(P/S): 100%)	WBT(P/S): 100%)	
ii) Intermediate condition 1/2 (Consumables:	ii) Intermediate condition 1/2 (Consumables:	
50%, No.6 WBT(P/S): 100%)	50%, No.6 WBT(P/S): 100%)	
iii) Intermediate condition 3/4 (Consumables:	iii) Intermediate condition 3/4 (Consumables:	
20%, No.6 WBT(P/S): 0%)	20%, No.6 WBT(P/S): 0%)	
iv) Arrival (Consumables: 10%, No.6	iv) Arrival (Consumables: 10%, No.6	
WBT(P/S): 0%)	WBT(P/S): 0%)	
(3) Where ballasting/deballasting operations are	(3) Where ballasting/deballasting operations are	
permitted only at certain times during the voyage	permitted only at certain times during the voyage	
For example, when loading conditions as shown in (a)	For example, when loading conditions as shown in (a)	
are deemed as standard loading conditions and	are deemed as standard loading conditions and	
ballasting/deballasting operations are assumed to be	ballasting/deballasting operations are assumed to be	
made when remaining consumables reach levels of	made when remaining consumables reach levels of	
50% and 20%, additional conditions such as in (b) are	50% and 20%, additional conditions such as in (b) are	
	required to be assessed. It is to be noted in the ship's	
required to be assessed. It is to be noted in the ship's	-	
loading manual that the timing for ballasting/deballasting is assumed to take place when	loading manual that the timing for ballasting/deballasting is assumed to take place when	
the remaining consumables are at 50% and 20% for	the remaining consumables are at 50% and 20% for	
	e	
the purpose of complying with the hull girder strength	the purpose of complying with the hull girder strength	
requirements and for ballasting/deballasting at other	requirements and for ballasting/deballasting at other	
times, the hull girder strength of the ship is to be	times, the hull girder strength of the ship is to be	
assessed while carefully noting the filling level of the	assessed while carefully noting the filling level of the	

	ballast tanks .	ballast tanks .	
	(a) Loading conditions specified in the ship's	(a) Loading conditions specified in the ship's	
	loading manual	loading manual	
	i) Departure (Consumables: 100%, No.6	i) Departure (Consumables: 100%, No.6	
	WBT(P/S): 0%)	WBT(P/S): 0%)	
	ii) Intermediate condition 1 (Consumables:	ii) Intermediate condition 1 (Consumables:	
	50%, No.6 WBT(P/S): 0%)	50%, No.6 WBT(P/S): 0%)	
	iii) Intermediate condition 2 (Consumables:	iii) Intermediate condition 2 (Consumables:	
	50%, No.6 WBT(P/S): 60%)	50%, No.6 WBT(P/S): 60%)	
	iv) Intermediate condition 3 (Consumables:	iv) Intermediate condition 3 (Consumables:	
	20%, No.6 WBT(P/S): 60%)	20%, No.6 WBT(P/S): 60%)	
	v) Intermediate condition 4 (Consumables:	v) Intermediate condition 4 (Consumables:	
	20%, No.6 WBT(P/S): 100%)	20%, No.6 WBT(P/S): 100%)	
	vi) Arrival (Consumables: 10%, No.6 WBT(P/S): 100%)	vi) Arrival (Consumables: 10%, No.6 WBT(P/S): 100%)	
	(b) Additional loading conditions for the assessment	(b) Additional loading conditions for the assessment	
	of hull girder strength are to be as follows.	of hull girder strength are to be as follows.	
	i) Intermediate condition 1/2 (Consumables:	i) Intermediate condition 1/2 (Consumables:	
	50%, No.6 WBT(P/S): 100%)	50%, No.6 WBT(P/S): 100%)	
	ii) Intermediate condition 3/4 (Consumables:	ii) Intermediate condition 3/4 (Consumables:	
	20%, No.6 WBT(P/S): 0%)	20%, No.6 WBT(P/S): 0%)	
(4)	Where an ore carrier conducts ballasting/deballasting	(4) Where an ore carrier conducts ballasting/deballasting	
	operations on 2 pairs of ballast tanks only at certain	operations on 2 pairs of ballast tanks only at certain	
	times during the voyage	times during the voyage	
	For example, when loading conditions as shown in (a)	For example, when loading conditions as shown in (a)	
	are deemed standard loading conditions and	are deemed standard loading conditions and	
	ballasting/deballasting operations are assumed to be	ballasting/deballasting operations are assumed to be	
	made when remaining consumables reach levels of	made when remaining consumables reach levels of	
	50% and 20%, additional conditions such as in (b) are	50% and 20%, additional conditions such as in (b) are	
	required to be assessed. It is to be noted in the ship's	required to be assessed. It is to be noted in the ship's	
	loading manual that the timing for	loading manual that the timing for	
	ballasting/deballasting is assumed to take place when	ballasting/deballasting is assumed to take place when	
	the remaining consumables are at 50% and 20% for	the remaining consumables are at 50% and 20% for	
	the purpose of complying with the hull girder strength	the purpose of complying with the hull girder strength	

requirements and for ballasting/deballasting at other	requirements and for ballasting/deballasting at other	
times the hull girder strength of the ship is to be	times the hull girder strength of the ship is to be	
assessed while carefully noting the filling level of the	assessed while carefully noting the filling level of the	
ballast tanks.	ballast tanks.	
(a) Loading conditions specified in the ship's	(a) Loading conditions specified in the ship's	
loading manual	loading manual	
i) Departure (Consumables: 100%, No.1	i) Departure (Consumables: 100%, No.1	
WBT(P/S): 60%, No.5 WBT(P/S): 30%)	WBT(P/S): 60%, No.5 WBT(P/S): 30%)	
ii) Intermediate condition 1 (Consumables:	ii) Intermediate condition 1 (Consumables:	
50%, No.1 WBT(P/S): 60%, No.5	50%, No.1 WBT(P/S): 60%, No.5	
WBT(P/S): 30%)	WBT(P/S): 30%)	
iii) Intermediate condition 2 (Consumables:	iii) Intermediate condition 2 (Consumables:	
50%, No.1 WBT(P/S): 30%, No.5	50%, No.1 WBT(P/S): 30%, No.5	
WBT(P/S): 50%)	WBT(P/S): 50%)	
iv) Intermediate condition 3 (Consumables:	iv) Intermediate condition 3 (Consumables:	
20%, No.1 WBT(P/S): 30%, No.5	20%, No.1 WBT(P/S): 30%, No.5	
WBT(P/S): 50%)	WBT(P/S): 50%)	
v) Intermediate condition 4 (Consumables:	v) Intermediate condition 4 (Consumables:	
20%, No.1 WBT(P/S): 10%, No.5	20%, No.1 WBT(P/S): 10%, No.5	
WBT(P/S): 70%)	WBT(P/S): 70%)	
vi) Arrival (Consumables: 10%, No.1	vi) Arrival (Consumables: 10%, No.1	
WBT(P/S): 10%, No.5 WBT(P/S): 70%)	WBT(P/S): 10%, No.5 WBT(P/S): 70%)	
(b) Additional loading conditions for the assessment	(b) Additional loading conditions for the assessment	
of hull girder strength are to be as follows.	of hull girder strength are to be as follows.	
"Max." and "Min." in the following conditions	"Max." and "Min." in the following conditions	
refer to the maximum and minimum filling	refer to the maximum and minimum filling	
levels specified in C15.2.1(6)., Part C of the	levels specified in C15.2.1(6).	
Guidance.	1 (- /	
i) Departure (Consumables: 100%, No.1	i) Departure (Consumables: 100%, No.1	
WBT(P/S): 60%, No.5 WBT(P/S): 30%)	WBT(P/S): 60%, No.5 WBT(P/S): 30%)	
1) Consumables: $100\%$ , No.1 WBT(P/S):	1) Consumables: 100%, No.1 WBT(P/S):	
60%, No.5 WBT(P/S): Max.	60%, No.5 WBT(P/S): Max.	
2) Consumables: 100%, No.1 WBT(P/S):	2) Consumables: 100%, No.1 WBT(P/S):	
60% No.5 WBT(P/S): Min.	60% No.5 WBT(P/S): Min	

	3) Consumables: 100%, No.1 WBT(P/S):	3) Consumables: 100%, No.1 WBT(P/S):
	100%, No.5 WBT(P/S): Max.	100%, No.5 WBT(P/S): Max.
	4) Consumables: 100%, No.1 WBT(P/S):	4) Consumables: 100%, No.1 WBT(P/S):
	100%, No.5 WBT(P/S): Min.	100%, No.5 WBT(P/S): Min.
	5) Consumables: 100%, No.1 WBT(P/S):	5) Consumables: 100%, No.1 WBT(P/S):
	0%, No.5 WBT(P/S): Max.	0%, No.5 WBT(P/S): Max.
	6) Consumables: 100%, No.1 WBT(P/S):	6) Consumables: 100%, No.1 WBT(P/S):
	0%, No.5 WBT(P/S): Min.	0%, No.5 WBT(P/S): Min.
	7) Consumables: 100%, No.1 WBT(P/S):	7) Consumables: 100%, No.1 WBT(P/S):
	Max., No.5 WBT(P/S): 30%	Max., No.5 WBT(P/S): 30%
	8) Consumables: 100%, No.1 WBT(P/S):	8) Consumables: 100%, No.1 WBT(P/S):
	Min., No.5 WBT(P/S): 30%	Min., No.5 WBT(P/S): 30%
	9) Consumables: 100%, No.1 WBT(P/S):	9) Consumables: 100%, No.1 WBT(P/S):
	Max., No.5 WBT(P/S): 100%	Max., No.5 WBT(P/S): 100%
	10) Consumables: 100%, No.1 WBT(P/S):	10) Consumables: 100%, No.1 WBT(P/S):
	Min., No.5 WBT(P/S): 100%	Min., No.5 WBT(P/S): 100%
	11) Consumables: 100%, No.1 WBT(P/S):	11) Consumables: 100%, No.1 WBT(P/S):
	Max., No.5 WBT(P/S): 0%	Max., No.5 WBT(P/S): 0%
	12) Consumables: 100%, No.1 WBT(P/S):	12) Consumables: 100%, No.1 WBT(P/S):
	Min., No.5 WBT(P/S): 0%	Min., No.5 WBT(P/S): 0%
ii)	Intermediate condition 1 (Consumables:	ii) Intermediate condition 1 (Consumables:
	50%, No.1 WBT(P/S): 60%, No.5	50%, No.1 WBT(P/S): 60%, No.5
	WBT(P/S): 30%)	WBT(P/S): 30%)
	1) Consumables: 50%, No.1 WBT(P/S):	1) Consumables: 50%, No.1 WBT(P/S):
	60%, No.5 WBT(P/S): Max.	60%, No.5 WBT(P/S): Max.
	2) Consumables: 50%, No.1 WBT(P/S):	2) Consumables: 50%, No.1 WBT(P/S):
	60%, No.5 WBT(P/S): Min.	60%, No.5 WBT(P/S): Min.
	3) Consumables: 50%, No.1 WBT(P/S):	3) Consumables: 50%, No.1 WBT(P/S):
	100%, No.5 WBT(P/S): Max.	100%, No.5 WBT(P/S): Max.
	4) Consumables: 50%, No.1 WBT(P/S):	4) Consumables: 50%, No.1 WBT(P/S):
	100%, No.5 WBT(P/S): Min.	100%, No.5 WBT(P/S): Min.
	5) Consumables: 50%, No.1 WBT(P/S):	5) Consumables: 50%, No.1 WBT(P/S):
	0%, No.5 WBT(P/S): Max.	0%, No.5 WBT(P/S): Max.
	6) Consumables: 50%, No.1 WBT(P/S):	6) Consumables: 50%, No.1 WBT(P/S):

0%, No.5 WBT(P/S): Min.	0%, No.5 WBT(P/S): Min.	
7) Consumables: 50%, No.1 WBT(P/S):	7) Consumables: 50%, No.1 WBT(P/S):	
Max., No.5 WBT(P/S): 30%	Max., No.5 WBT(P/S): 30%	
8) Consumables: 50%, No.1 WBT(P/S):	8) Consumables: 50%, No.1 WBT(P/S):	
Min., No.5 WBT(P/S): 30%	Min., No.5 WBT(P/S): 30%	
9) Consumables: 50%, No.1 WBT(P/S):	9) Consumables: 50%, No.1 WBT(P/S):	
Max., No.5 WBT(P/S): 100%	Max., No.5 WBT(P/S): 100%	
10) Consumables: 50%, No.1 WBT(P/S):	10) Consumables: 50%, No.1 WBT(P/S):	
Min., No.5 WBT(P/S): 100%	Min., No.5 WBT(P/S): 100%	
11) Consumables: 50%, No.1 WBT(P/S):	11) Consumables: 50%, No.1 WBT(P/S):	
Max., No.5 WBT(P/S): 0%	Max., No.5 WBT(P/S): 0%	
12) Consumables: 50%, No.1 WBT(P/S):	12) Consumables: 50%, No.1 WBT(P/S):	
Min., No.5 WBT(P/S): 0%	Min., No.5 WBT(P/S): 0%	
iii) Intermediate condition 2 (Consumables:	iii) Intermediate condition 2 (Consumables:	
50%, No.1 WBT(P/S): 30%, No.5	50%, No.1 WBT(P/S): 30%, No.5	
WBT(P/S): 50%)	WBT(P/S): 50%)	
1) Consumables: 50%, No.1 WBT(P/S):	1) Consumables: 50%, No.1 WBT(P/S):	
30%, No.5 WBT(P/S): Max.	30%, No.5 WBT(P/S): Max.	
2) Consumables: $50\%$ , No.1 WBT(P/S):	2) Consumables: 50%, No.1 WBT(P/S):	
30%, No.5 WBT(P/S): Min.	30%, No.5 WBT(P/S): Min.	
3) Consumables: $50\%$ , No.1 WBT(P/S):	3) Consumables: 50%, No.1 WBT(P/S):	
Max., No.5 WBT(P/S): 50%	Max., No.5 WBT(P/S): 50%	
4) Consumables: $50\%$ , No.1 WBT(P/S):	4) Consumables: 50%, No.1 WBT(P/S):	
Min., No.5 WBT(P/S): 50%	Min., No.5 WBT(P/S): 50%	
iv) Intermediate condition 3 (Consumables:	iv) Intermediate condition 3 (Consumables:	
20%, No.1 WBT(P/S): 30%, No.5	20%, No.1 WBT(P/S): 30%, No.5	
WBT(P/S): 50%)	WBT(P/S): 50%)	
1) Consumables: 20%, No.1 WBT(P/S):	1) Consumables: 20%, No.1 WBT(P/S):	
30%, No.5 WBT(P/S): Max.	30%, No.5 WBT(P/S): Max.	
2) Consumables: 20%, No.1 WBT(P/S):	2) Consumables: 20%, No.1 WBT(P/S):	
30%, No.5 WBT(P/S): Min.	30%, No.5 WBT(P/S): Min.	
3) Consumables: 20%, No.1 WBT(P/S): $1000($ N $ = 5$ WDT(P/S) $ = 1000($ N $ = 5$ WDT(P/S) $ = 1000($ N $ = 5$ WDT(P/S) $ = 1000($ N = 1000( N $ = 1000($ N $ =$	3) Consumables: 20%, No.1 WBT(P/S):	
100%, No.5 WBT(P/S): Max.	100%, No.5 WBT(P/S): Max.	
4) Consumables: 20%, No.1 WBT(P/S):	4) Consumables: 20%, No.1 WBT(P/S):	

100%, No.5 WBT(P/S): Min.	100%, No.5 WBT(P/S): Min.	
5) Consumables: 20%, No.1 WBT(P/S):	5) Consumables: 20%, No.1 WBT(P/S):	
0%, No.5 WBT(P/S): Max.	0%, No.5 WBT(P/S): Max.	
6) Consumables: 20%, No.1 WBT(P/S):	6) Consumables: 20%, No.1 WBT(P/S):	
0%, No.5 WBT(P/S): Min.	0%, No.5 WBT(P/S): Min.	
7) Consumables: 20%, No.1 WBT(P/S):	7) Consumables: 20%, No.1 WBT(P/S):	
Max., No.5 WBT(P/S): 50%	Max., No.5 WBT(P/S): 50%	
8) Consumables: 20%, No.1 WBT(P/S):	8) Consumables: 20%, No.1 WBT(P/S):	
Min., No.5 WBT(P/S): 50%	Min., No.5 WBT(P/S): 50%	
9) Consumables: 20%, No.1 WBT(P/S):	9) Consumables: 20%, No.1 WBT(P/S):	
Max., No.5 WBT(P/S): 100%	Max., No.5 WBT(P/S): 100%	
10) Consumables: 20%, No.1 WBT(P/S):	10) Consumables: 20%, No.1 WBT(P/S):	
Min., No.5 WBT(P/S): 100%	Min., No.5 WBT(P/S): 100%	
11) Consumables: 20%, No.1 WBT(P/S):	11) Consumables: 20%, No.1 WBT(P/S):	
Max., No.5 WBT(P/S): 0%	Max., No.5 WBT(P/S): 0%	
12) Consumables: 20%, No.1 WBT(P/S):	12) Consumables: 20%, No.1 WBT(P/S):	
Min., No.5 WBT(P/S): 0%	Min., No.5 WBT(P/S): 0%	
v) Intermediate condition 4 (Consumables:	v) Intermediate condition 4 (Consumables:	
20%, No.1 WBT(P/S): 10%, No.5	20%, No.1 WBT(P/S): 10%, No.5	
WBT(P/S): 70%)	WBT(P/S): 70%)	
1) Consumables: 20%, No.1 WBT(P/S):	1) Consumables: 20%, No.1 WBT(P/S):	
10%, No.5 WBT(P/S): Max.	10%, No.5 WBT(P/S): Max.	
2) Consumables: 20%, No.1 WBT(P/S):	2) Consumables: 20%, No.1 WBT(P/S):	
10%, No.5 WBT(P/S): Min.	10%, No.5 WBT(P/S): Min.	
3) Consumables: 20%, No.1 WBT(P/S):	3) Consumables: 20%, No.1 WBT(P/S):	
Max., No.5 WBT(P/S): 70%	Max., No.5 WBT(P/S): 70%	
4) Consumables: 20%, No.1 WBT(P/S):	4) Consumables: 20%, No.1 WBT(P/S):	
Min., No.5 WBT(P/S): 70%	Min., No.5 WBT(P/S): 70%	
vi) Arrival (Consumables: 10%, No.1	vi) Arrival (Consumables: 10%, No.1	
WBT(P/S): 10%, No.5 WBT(P/S): 70%)	WBT(P/S): 10%, No.5 WBT(P/S): 70%)	
1) Consumables: 10%, No.1 WBT(P/S):	1) Consumables: $10\%$ , No.1 WBT(P/S):	
10%, No.5 WBT(P/S): Max.	10%, No.5 WBT(P/S): Max.	
2) Consumables: $10\%$ , No.1 WBT(P/S):	2) Consumables: $10\%$ , No.1 WBT(P/S):	
10%, No.5 WBT(P/S): Min.	10%, No.5 WBT(P/S): Min.	

3)	Consumables: 10%, No.1 WBT(P/S):	3)	Consumables: 10%, No.1 WBT(P/S):
	100%, No.5 WBT(P/S): Max.		100%, No.5 WBT(P/S): Max.
4)	Consumables: 10%, No.1 WBT(P/S):	4)	Consumables: 10%, No.1 WBT(P/S):
	100%, No.5 WBT(P/S): Min.		100%, No.5 WBT(P/S): Min.
5)	Consumables: 10%, No.1 WBT(P/S):	5)	Consumables: 10%, No.1 WBT(P/S):
	0%, No.5 WBT(P/S): Max.		0%, No.5 WBT(P/S): Max.
6)	Consumables: 10%, No.1 WBT(P/S):	6)	Consumables: 10%, No.1 WBT(P/S):
	0%, No.5 WBT(P/S): Min.		0%, No.5 WBT(P/S): Min.
7)	Consumables: 10%, No.1 WBT(P/S):	7)	Consumables: 10%, No.1 WBT(P/S):
	Max., No.5 WBT(P/S): 70%		Max., No.5 WBT(P/S): 70%
8)	Consumables: 10%, No.1 WBT(P/S):	8)	Consumables: 10%, No.1 WBT(P/S):
	Min., No.5 WBT(P/S): 70%		Min., No.5 WBT(P/S): 70%
9)	Consumables: 10%, No.1 WBT(P/S):	9)	Consumables: 10%, No.1 WBT(P/S):
	Max., No.5 WBT(P/S): 100%		Max., No.5 WBT(P/S): 100%
10)	Consumables: 10%, No.1 WBT(P/S):	10)	Consumables: 10%, No.1 WBT(P/S):
	Min., No.5 WBT(P/S): 100%		Min., No.5 WBT(P/S): 100%
11)	Consumables: 10%, No.1 WBT(P/S):	11)	Consumables: 10%, No.1 WBT(P/S):
	Max., No.5 WBT(P/S): 0%		Max., No.5 WBT(P/S): 0%
12)	Consumables: 10%, No.1 WBT(P/S):	12)	Consumables: 10%, No.1 WBT(P/S):
	Min., No.5 WBT(P/S): 0%		Min., No.5 WBT(P/S): 0%

### Guidance for the survey and construction of steel ships Part C Annex C15.2.1 1.2.1-6

Correction	Present	Note
4 Torsional buckling The load-end shortening curve $\sigma_{CR2} - \varepsilon$ for the flexural-torsional buckling of stiffeners composing the hull girder transverse section is to be obtained according to the following formula:	4 Torsional buckling The load-end shortening curve $\sigma_{CR2} - \varepsilon$ for the flexural-torsional buckling of stiffeners composing the hull girder transverse section is to be obtained according to the following formula:	Wording correction
$\sigma_{CR2} = \Phi \frac{A_P \sigma_{CP} + A_S \sigma_{C2}}{A_P + A_S}$	$\sigma_{CR2} = \Phi \frac{A_P \sigma_{CP} + A_S \sigma_{C2}}{A_P + A_S}$	
Φ: Edge function, as defined in -2. $σ_{C2}$ : Critical stress ( <i>N/mm</i> <sup>2</sup> ), equal to the following:	Φ: Edge function, as defined in -2. $σ_{C2}$ : Critical stress ( <i>N/mm</i> <sup>2</sup> ), equal to the following:	
$\sigma_{C2} = \frac{\sigma_{E2}}{\varepsilon} \qquad \text{for } \sigma_{E2} \le \frac{\sigma_{YS}}{2}\varepsilon$	$\sigma_{C2} = \frac{\sigma_{E2}}{\varepsilon} \qquad \text{for } \sigma_{E2} \le \frac{\sigma_{YS}}{2}\varepsilon$	
$\sigma_{C2} = \sigma_{YS} \left( 1 - \frac{\sigma_{YS}\varepsilon}{4\sigma_{E2}} \right) \qquad \text{for } \sigma_{E2} > \frac{\sigma_{YS}}{2}\varepsilon$ $\varepsilon:$ Relative strain, as defined in -2.	$\sigma_{C2} = \sigma_{YS} \left( 1 - \frac{\sigma_{YS}\varepsilon}{4\sigma_{E2}} \right) \qquad \text{for } \sigma_{E2} > \frac{\sigma_{YS}}{2}\varepsilon$ $\varepsilon:  \text{Relative strain, as defined in -2.}$	
$\sigma_{E2}$ : Euler torsional buckling stress ( <i>N/mm<sup>2</sup></i> ), taken as $\sigma_{ET}$ specified in 2.4.4-4. Annex C32.2.7 "GUIDANCE FOR BUCKLING STRENGTH ASSESSMENT".	$\sigma_{E2}$ : Euler torsional buckling stress ( <i>N/mm<sup>2</sup></i> ), taken as $\sigma_{ET}$ specified in 2.4.4-4 Annex C32.2.7 "GUIDANCE FOR BUCKLING STRENGTH ASSESSMENT".	
$\sigma_{CP}$ : Buckling stress of the attached plating ( <i>N</i> / <i>mm</i> <sup>2</sup> ), equal to the following:	$\sigma_{CP}$ : Buckling stress of the attached plating ( <i>N</i> / <i>mm</i> <sup>2</sup> ), equal to the following:	
$\sigma_{CP} = \left(\frac{2.25}{\beta_E} - \frac{1.25}{\beta_E^2}\right) \sigma_{YP}  \text{for } \beta_E > 1.25$	$\sigma_{CP} = \left(\frac{2.25}{\beta_E} - \frac{1.25}{\beta_E^2}\right) \sigma_{YP}  \text{for } \beta_E > 1.25$	
$\sigma_{CP} = \sigma_{YP} \qquad \text{for } \beta_E \le 1.25$	$\sigma_{CP} = \sigma_{YP} \qquad \text{for } \beta_E \le 1.25$	
$\beta_E$ : Coefficient, as defined in -3.	$\beta_E$ : Coefficient, as defined in -3.	

#### Guidance for the survey and construction of steel ships Part C Annex C34.1.2 1.2.1-6

Correction			Present	Note
1 The following precautions regarding loading are to be specified in the Loading Manual.		1 specifi	The following precautions regarding loading are to be ed in the Loading Manual.	Wording correction
(1) (2) (3)	For standard loading conditions, the analysis results of structural strength including transverse strength and local strength and the operational precautions based on the analysis results of the strength For loading conditions different from standard loading conditions, precautions regarding the prevention of excessive stress on the hull strength Precautions regarding weight shifting involving the	(1) (2) (3)	For standard loading conditions, the analysis results of structural strength including transverse strength and local strength and the operational precautions based on the analysis results of the strength For loading conditions different from standard loading conditions, precautions regarding the prevention of excessive stress on the hull strength Precautions regarding weight shifting involving the	
(4)	transfer of ballast water and cargo when loading under standard loading conditions or any other arbitrary loading conditions Precautions related to the filling level of ballast tanks according to the provisions of C15.2.1(6)). Part C of the Guidance	(4)	transfer of ballast water and cargo when loading under standard loading conditions or any other arbitrary loading conditions Precautions related to the filling level of ballast tanks according to the provisions of C15.2.1(6)	

#### Guidance for the survey and construction of steel ships Part C Annex C34.1.2 1.2.4-1

Correction	Present	Note
1 For ships to which the requirements in 32.3.1-1, Part	1 For ships to which the requirements in 32.3.1-1, Part	Wording correction
C of the Rules apply, the values of torsional moment of hull	C of the Rules apply, the values of torsional moment of hull	to or aning correction
due to uneven cargo stowage are to be specified as the	due to uneven cargo stowage are to be specified as the	
allowable value in the manual. In cases where the values of	allowable value in the manual. In cases where the values of	
torsional moments of hull due to uneven cargo stowage are to	torsional moments of hull due to uneven cargo stowage are to	
be considered for ships subject to the requirements in C32.3.1,	be considered for ships subject to the requirements in C32.3.1,	
Part C of the Guidance, the torsional moments are to be	the torsional moments are to be taken as the allowable values	
taken as the allowable values in the manual.	in the manual.	

#### Guidance for the survey and construction of steel ships Part C Annex C34.1.2 1.3.2-2

Correction	Present	Note
2 The results of calculations specified in <u>-1</u> above on	2 The results of calculations specified in 1 above on each	Wording correction
each condition are to be shown on a single or double page as	condition are to be shown on a single or double page as far as	thorating correction
far as practicable together with the arrangement plan of	practicable together with the arrangement plan of	
compartments (tanks and cargo holds), cargo stowage table,	compartments (tanks and cargo holds), cargo stowage table,	
and the results of trim and stability calculations.	and the results of trim and stability calculations.	

#### Guidance for the survey and construction of steel ships Part C Annex C34.1.2 1.3.2-3

Correction	Present	Note
<b>3</b> Descriptive examples specified in <u>-1</u> and <u>-2</u> above are	1 1 1	Wording correction
shown in 1.5 of Appendix C2. Restrictions imposed for	shown in 1.5 of Appendix C2. Restrictions imposed for	8
operation of the ship in standard loading conditions if any, are	operation of the ship in standard loading conditions if any, are	
to be specified.	to be specified.	

#### Guidance for the survey and construction of steel ships Part C Annex C34.1.2 1.3.2-3

Correction	Present	Note
1 For ships to which the requirements in Chapter 32,	1 For ships to which the requirements in Chapter 32,	Wording correction
Part C of the Rules do not apply, the allowable values for	Part C of the Rules do not apply, the allowable values for	the standing controller
longitudinal still water bending moment and still water	longitudinal still water bending moment and still water	
shearing force which are to be specified in the Loading	shearing force which are to be specified in the Loading	
Manual are to be determined with due consideration of the	Manual are to be determined with due consideration of the	
design condition of the ship. These values, however, are not to	design condition of the ship. These values, however, are not to	
exceed the values obtained from the requirements in the	exceed the values obtained from the requirements in the	
following (1) to (3), at positions of the transverse section of	following (1) to (3), at positions of the transverse section of	
the hull where deemed necessary by the Society.	the hull where deemed necessary by the Society.	
(1) Allowable Values for Vertical Still Water Bending	(1) Allowable Values for Vertical Still Water Bending	
Moment	Moment	
The values obtained from the following formulae are	The values obtained from the following formulae are	
to be taken as the allowable value for each positive	to be taken as the allowable value for each positive	
and negative moment at the transverse section of the	and negative moment at the transverse section of the	
ship under consideration. However, these values are	ship under consideration. However, these values are	
to satisfy the requirements in 15.4, Part C of the	to satisfy the requirements in 15.4, Part C of the	

# **Rules**. Value determined by longitudinal bending strength For positive values: $\frac{fZ}{5.72C} - M_w(+) (kN-m)$ For negative values: $-\frac{fZ}{5.72C} - M_w(-)(kN-m)$ f: As specified in the following (a) or (b): (a) 1.0 for ships to which the requirements in

- a) 1.0 for ships to which the requirements in 1.1.7-2(1), Part C and 1.3.1-2(1), Part CS of the Rules do not apply However, for ships to which the requirements with  $f_B$  or  $f_D$  in Part C of the Rules or Part C of the Guidance apply, the value of f is to be taken as  $f_B$  or  $f_D$ .
- (b) The value of  $f_{BH}$  or  $f_{DH}$  determined by the requirements in 1.2.1-2(1) of Annex C1.1.7-1 "GUIDANCE FOR HULL CONSTRUCTION CONTAINING HIGH TENSILE STEEL MEMBERS" for ships to which the requirements in 1.1.7-2(1), Part C or 1.3.1-2(1), Part CS of the Rules is applied
- *Z*: Section modulus  $(cm^3)$  of transverse section of the ship with respect to the ship's bottom or strength deck at the position under consideration
- C: Coefficient specified in C15.1.1(3), PartCPart <u>C</u> of the Guidance However, where  $C'_b \ge 0.65, C = 1.0.$  $C'_b$ : As specified in 15.2.1-1, Part C of the Rules
- $M_w(+)$  and  $M_w(-)$ : As specified in 15.2.1-1, Part C of the Rules
- (2) Allowable Values for Still Water Shearing Force<br/>(a) The allowable values for still water shearing(2) A

#### Rules.

Value determined by longitudinal bending strength

For positive values: 
$$\frac{fZ}{5.72C} - M_w(+)$$
 (*kN-m*)  
For negative values:  $-\frac{fZ}{5.72C} - M_w(-)$ (*kN-m*)

- f: As specified in the following (a) or (b):
  - (a) 1.0 for ships to which the requirements in 1.1.7-2(1), Part C and 1.3.1-2(1), Part CS of the Rules do not apply However, for ships to which the requirements with f<sub>B</sub> or f<sub>D</sub> in Part C of the Rules or Part C of the Guidance apply, the value of f is to be taken as f<sub>B</sub> or f<sub>D</sub>.
    (b) The value of f<sub>BH</sub> or f<sub>DH</sub> determined by the requirements in 1.2.1-2(1) of Annex C1.1.7-
  - 1 "GUIDANCE FOR HULL CONSTRUCTION CONTAINING HIGH TENSILE STEEL MEMBERS" for ships to which the requirements in 1.1.7-2(1), Part C or 1.3.1-2(1), Part CS of the Rules is applied
- *Z*: Section modulus  $(cm^3)$  of transverse section of the ship with respect to the ship's bottom or strength deck at the position under consideration
- C: Coefficient specified in C15.1.1(3), PartC of the Guidance However, where

 $C'_{b} \ge 0.65, C = 1.0.$ 

C'<sub>b</sub>: As specified in 15.2.1-1, Part C of the Rules

- $M_w(+)$  and  $M_w(-)$ : As specified in 15.2.1-1, Part C of the Rules
- Allowable Values for Still Water Shearing Force(a) The allowable values for still water shearing

forces for ships without longitudinal bulkheads are to be obtained from the following formula: For positive values:  $\frac{t_s I}{0.455mK} - F_w(+)$  (*kN*) For negative values:  $-\frac{t_s I}{0.455 mK} - F_w(-)$  (kN)  $t_s$ : Plate thickness (*mm*) of side shell plating at positions under consideration  $I, m, F_w(+)$  and  $F_w(-)$ : As specified in 15.3.1-1, Part C of the Rules *K*: Coefficient corresponding to the kind of steel e.g., 1.0 for mild steel, the values specified in 1.1.7-2(1) of the Rules for high tensile steel (b) For ships which have the plate thickness of side shell plating determined according to the requirements in C15.3.1-1 of the Guidance, the value of (a) above or the value obtained from the following formula is to be taken, whichever is smaller. For positive values:  $F \frac{\tau_p}{\tau} - F_w(+)$  (kN) For negative values:  $-F\frac{\tau_p}{\tau} - F_w(-)$  (kN) F: Shearing force (kN) acting on the transverse section of the ship used in the direct calculation which is given by the formulae specified in C15.3.1-1(1))  $F_w(+)$  and  $F_w(-)$ : Wave induced longitudinal shearing force (kN) as specified in 15.3.1-1, **Part C of the Rules**  $\tau_p$ : Allowable stress (*N/mm<sup>2</sup>*) as specified in C15.3.1-1(2)The largest of the shearing stresses  $(N/mm^2)$  $\tau$ :

are to be obtained from the following formula: For positive values:  $\frac{t_s I}{0.455 mK} - F_w(+)$  (kN) For negative values:  $-\frac{t_s I}{0.455 mK} - F_w(-)$  (kN)  $t_s$ : Plate thickness (*mm*) of side shell plating at positions under consideration  $I, m, F_w(+)$  and  $F_w(-)$ : As specified in 15.3.1-1, Part C of the Rules *K*: Coefficient corresponding to the kind of steel e.g., 1.0 for mild steel, the values specified in 1.1.7-2(1) of the Rules for high tensile steel (b) For ships which have the plate thickness of side shell plating determined according to the requirements in C15.3.1-1 of the Guidance, the value of (a) above or the value obtained from the following formula is to be taken, whichever is smaller. For positive values:  $F \frac{\iota_p}{\tau} - F_w(+)$  (kN) For negative values:  $-F\frac{\tau_p}{\tau} - F_w(-)$  (kN) F: Shearing force (kN) acting on the transverse section of the ship used in the direct calculation which is given by the formulae specified in C15.3.1-1(1)  $F_w(+)$  and  $F_w(-)$ : Wave induced longitudinal shearing force (kN) as specified in 15.3.1-1, Part C of the Rules  $\tau_p$ : Allowable stress (N/mm<sup>2</sup>) as specified in C15.3.1-1(2)

forces for ships without longitudinal bulkheads

determined by direct calculation occurring in side shell plating, bilge hopper tanks and top side tanks

- (c) For ships with one to four rows of longitudinal bulkheads, the allowable value for still water shearing force is to be as specified in the following requirements in i) and ii):
  - i) The allowable value for still water shearing force is to be obtained from the following formula:

For positive values: 
$$\frac{\sum tI}{0.455mK} - F_w(+)$$
 (kN)  
For negative values:  $-\frac{\sum tI}{0.455mK} - F_w(-)$ 

- *I*, *m*,  $F_w(+)$  and  $F_w(-)$ : As specified in 15.3.1-1, Part C of the Rules
- $\sum t$ :Sum of the plate thickness (*mm*) of each longitudinal bulkhead at positions under consideration
- *K*: As specified in (a) above
- ii) The allowable value for shearing force  $(F_L)$  acting on the longitudinal bulkheads on one side is to be obtained from the following formula:

For positive values: 
$$\frac{tI}{0.910mK} - \alpha F_w(+)$$
 (kN)  
For negative values:  $-\frac{tI}{0.910mK} - \alpha F_w(-)$  (kN)  
 $I, m, F_w(+)$  and  $F_w(-)$ : As specified in **15.3.1-1, Part C of the Rules**

*t*: Plate thickness (*mm*) of the each longitudinal bulkhead at positions under

- $\tau$ : The largest of the shearing stresses (*N/mm<sup>2</sup>*) determined by direct calculation occurring in side shell plating, bilge hopper tanks and top side tanks
- (c) For ships with one to four rows of longitudinal bulkheads, the allowable value for still water shearing force is to be as specified in the following requirements in i) and ii):
  - i) The allowable value for still water shearing force is to be obtained from the following formula:

For positive values:  $\frac{\sum tI}{0.455mK} - F_w(+)$  (kN)

For negative values:  $-\frac{\sum tI}{0.455mK} - F_w(-)$ (kN)

- $I, m, F_w(+)$  and  $F_w(-)$ : As specified in 15.3.1-1, Part C of the Rules
- $\sum t$ :Sum of the plate thickness (*mm*) of each longitudinal bulkhead at positions under consideration
- *K*: As specified in (a) above
- ii) The allowable value for shearing force  $(F_L)$  acting on the longitudinal bulkheads on one side is to be obtained from the following formula:

For positive values: 
$$\frac{tI}{0.910mK} - \alpha F_w(+)$$
 (kN)  
For negative values:  $-\frac{tI}{0.910mK} - \alpha F_w(-)$  (kN)

- I, m,  $F_w(+)$  and  $F_w(-)$ : As specified in 15.3.1-1, Part C of the Rules
- t: Plate thickness (mm) of the each

	consideration		longitudinal bulkhead at positions under	
	$\alpha$ : Rate of distribution of shearing force in		consideration	
	each longitudinal bulkhead as specified		$\alpha$ : Rate of distribution of shearing force in	
	in 15.3.2, Part C of the Rules		each longitudinal bulkhead as specified	
	<i>K</i> : As specified in (a) above		in 15.3.2, Part C of the Rules	
	(d) The allowable values for $F_s$ determined from (a)		K: As specified in (a) above	
	to (c) above are to comply with the requirements		(d) The allowable values for $F_s$ determined from (a)	
	in 15.4.1, Part C of the Rules.		to (c) above are to comply with the requirements	
(3)	Allowable Values for Longitudinal Still Water		in 15.4.1, Part C of the Rules.	
	Bending Moment and Shearing Force in Harbour	(3)	Allowable Values for Longitudinal Still Water	
	Condition		Bending Moment and Shearing Force in Harbour	
	The allowable values for the longitudinal still water		Condition	
	bending moment and shearing force in harbour water		The allowable values for the longitudinal still water	
	free from the effects of waves may be obtained by		bending moment and shearing force in harbour water	
	taking half the values of the wave induced		free from the effects of waves may be obtained by	
	longitudinal bending moment and shearing force as		taking half the values of the wave induced	
	specified in (1) and (2) respectively.		longitudinal bending moment and shearing force as	
			specified in (1) and (2) respectively.	

## Guidance for the survey and construction of steel ships Part C Annex C34.1.2 1.4.1-2

Correction	Present	Note
2 For ships to which the requirements in Chapter 32,	2 For ships to which the requirements in Chapter 32,	Wording correction
Part C of the Rules apply, the allowable values for the	Part C of the Rules apply, the allowable values for the	
vertical still water bending moment and vertical still water	vertical still water bending moment and vertical still water	
shear force which are to be specified in the loading manual	shear force which are to be specified in the loading manual	
are to be the permissible vertical still water bending moment	are to be the permissible vertical still water bending moment	
and vertical still water shear force specified in 32.2.3-4, Part	and vertical still water shear force specified in 32.2.3-4, Part	
C of the Rules.	C of the Rules.	
The allowable values for the vertical still water bending	The allowable values for the vertical still water bending	
moment and vertical still water shear force in the harbour	moment and vertical still water shear force in the harbour	
condition may be the values of the above allowable values for	condition may be the values of the above allowable values for	
the vertical still water bending moment and vertical still water	the vertical still water bending moment and vertical still water	
shear force plus half the value of the vertical wave induced	shear force plus half the value of the vertical wave induced	
bending moment and vertical wave induced shear force as	bending moment and vertical wave induced shear force as	
specified in 32.2.93-6 and -7, Part C of the Rules.	specified in 32.2.9-6 and -7, Part C of the Rules.	

## Guidance for the survey and construction of steel ships Part C Annex C35.2.4 2.6.2-1

	Correction		Present	Note
	Safety measures, including the following, should be by an authorised person prior to survey to the action of the attending surveyor(s):		Safety measures, including the following, should be by an authorised person prior to survey to the ction of the attending surveyor(s):	Wording correction
(1)	The surface of the water in the tank should be calm (under all foreseeable conditions the expected rise of water within the tank should not exceed $0.25 m$ ) and the water level stationary. On no account should the level of the water be rising while the boat or raft is in use.	(1)	The surface of the water in the tank should be calm (under all foreseeable conditions the expected rise of water within the tank should not exceed $0.25 m$ ) and the water level stationary. On no account should the level of the water be rising while the boat or raft is in use.	
(2)	Except where permanent means of access is provided in each bay to allow safe entry and exit in accordance with C35.2.4-3(2), <u>Part C of the Guidance</u> , at no time should the upside of the boat or raft be allowed to be within 1 $m$ of the deepest under deck web face flat.	(2)	Except where permanent means of access is provided in each bay to allow safe entry and exit in accordance with C35.2.4-3(2), at no time should the upside of the boat or raft be allowed to be within 1 $m$ of the deepest under deck web face flat.	
(3)	The tank or space in which the boat or raft will be used should contain clean ballast water only. When a thin sheen of oil on the water is observed, further testing of the atmosphere should be done to ensure that the tank or space is safe for entering.	(3)	The tank or space in which the boat or raft will be used should contain clean ballast water only. When a thin sheen of oil on the water is observed, further testing of the atmosphere should be done to ensure that the tank or space is safe for entering.	
(4)	If the tanks (or spaces) are connected by a common venting system, or inert gas system, the tank in which the boat or raft will be used should be isolated to prevent a transfer of gas from other tanks (or spaces). Appropriate lifejackets should be available for all	(4)	If the tanks (or spaces) are connected by a common venting system, or inert gas system, the tank in which the boat or raft will be used should be isolated to prevent a transfer of gas from other tanks (or spaces). Appropriate lifejackets should be available for all	
(6)	participants. The boat or raft should be tethered to the access ladder	(6)	participants. The boat or raft should be tethered to the access ladder	
(7)	and an additional person should be stationed down the access ladder with a clear view of the boat or raft. A communication system should be arranged between	(7)	and an additional person should be stationed down the access ladder with a clear view of the boat or raft. A communication system should be arranged between	
	the survey party in the tank or space being examined, the responsible officer on deck, the navigation bridge	(7)	the survey party in the tank or space being examined, the responsible officer on deck, the navigation bridge	

and the personnel in charge of handling the ballast	and the personnel in charge of handling the ballast	
pump(s) in the pump control room.	pump(s) in the pump control room.	
(8) Adequate and safe lighting should be provided for the	(8) Adequate and safe lighting should be provided for the	
safe and efficient conduct of the survey.	safe and efficient conduct of the survey.	

#### Guidance for the survey and construction of steel ships Part C Part 1 C13 C13 2.9.2-4

Correction	Present	Note
1 Split pins are not recommendable as the locking device	1 Split pins are not recommendable as the locking device	Reference correction
for pintle nuts. Locking rings or other equivalent devices are	for pintle nuts. Locking rings or other equivalent devices are	
to be used, as shown in Fig. C13.2.9-1.	to be used, as shown in Fig. C13.2.9-1.	
2 To prevent corrosion of pintles, the end of the sleeve	2 To prevent corrosion of pintles, the end of the sleeve	
is to be filled with red lead, grease packing, bituminous	is to be filled with red lead, grease packing, bituminous	
enamel, rubber, etc. as shown in Fig. C13.2.9-1.	enamel, rubber, etc. as shown in Fig. C13.2.9-1.	
<b>3</b> Combining pintle and rudder frame into a monoblock	3 Combining pintle and rudder frame into a monoblock	
is not recommended.	is not recommended.	
4 For the reaction force in bearing B specified in	4 For the reaction force in bearing B specified in	
<b>13.2.9.2-2, Part </b> $4C$ <b> of the Rules</b> , for example, $B_1$ defined in	13.2.9.2-2, Part 1, for example, <i>B</i> <sup>1</sup> defined in Fig. C13.2.4-4	
Fig. C13.2.4-4 is used for Type D rudders.	is used for Type D rudders.	

#### Guidance for the survey and construction of steel ships Part C Part 1 Appendix C3

Correction	Present	Note
This Appendix gives a reference sample for the preparation	This Appendix gives a reference sample for the preparation	Reference correction
of a Ship Structure Access Manual as required in 14.16.2.63.5,	of a Ship Structure Access Manual as required in 14.16.2.6,	
Part 1 of Part C of the Rules. This includes items specified	Part 1 of Part C of the Rules. This includes items specified	
in the Rules and also general notices for ensuring the	in the Rules and also general notices for ensuring the	
maintenance of a minimum level of safety in the use of means	maintenance of a minimum level of safety in the use of means	
· 1	of access, with examples. It should be noted that when	
preparing the manual for each ship, factors such as the	preparing the manual for each ship, factors such as the	
specifications of means of access and the type of ship safety	specifications of means of access and the type of ship safety	
management system onboard that ship are taken into	management system onboard that ship are taken into	
consideration.	consideration.	

### Guidance for the survey and construction of steel ships Part U U1 U1.1.2-1

Correction	Present	Note
<ul> <li>1 For certain ships which have comparatively wider beams and smaller depths than typical ships (about B/D ≥ 2.5), notwithstanding the provisions of 2.2.1-1, Chapter 2, Part U of the Rules, stability curves may comply with the following requirements in cases where deemed acceptable by the Society.</li> <li>(1) Stability curves are to be comply with the requirements given in 2.2.1-1(1) to (4) and (6), Chapter 2, Part U of the Rules.</li> <li>(2) θ<sub>max</sub> is to be comply with the following requirements: <ul> <li>(a) θ<sub>max</sub> is not to be less than 15°.</li> <li>(b) With respect to the requirements given in Fig. U2.1, Part U of the Rules, the area under a stability curve between 0° and θ<sub>max</sub> (m · rad) is to be not less than:</li> <li>0.055 + 0.001(30° - θ<sub>max</sub>)</li> <li>where θ<sub>max</sub> is as given in 2.2.1-1, Chapter 2, Part U of the Rules.</li> </ul> </li> </ul>	<ol> <li>For certain ships which have comparatively wider beams and smaller depths than typical ships (about B/D ≥ 2.5), notwithstanding the provisions of 2.2.1-1, Chapter 2, Part U of the Rules, stability curves may comply with the following requirements in cases where deemed acceptable by the Society.         <ol> <li>Stability curves are to be comply with the requirements given in 2.2.1-1(1) to (4) and (6), Chapter 2, Part U.</li> <li>θ<sub>max</sub> is to be comply with the following requirements:                 <ul></ul></li></ol></li></ol>	Wording correction

### Guidance for the survey and construction of steel ships Part U Annex U1.2.1 1.3.2-6

Correction	Present	Note
6 Where the ships are loaded with timber deck cargoes	6 Where the ships are loaded with timber deck cargoes	
and are applied to the requirements of 2.2.1-2, Part U of the	and are applied to the requirements of 2.2.1-2, Part U of the	<b>W</b> 7 1.
Rules and U2.3.1-3 of the Guidance, the condition that such	Rules and U2.3.1-3, the condition that such cargo is stowed in	Wording correction
cargo is stowed in accordance with the provisions of Chapter	accordance with the provisions of Chapter 3 of the CODE OF	
3 of the CODE OF SAFE PRACTICE FOR SHIPS	SAFE PRACTICE FOR SHIPS CARRYING TIMBER DECK	
CARRYING TIMBER DECK CARGOES, 1991 (resolution	CARGOES, 1991 (resolution A.715(17)) are to be described.	
A.715(17)) are to be described.		

## Guidance for the survey and construction of steel ships Part U Annex U1.2.2 1.3.1-1

Correction	Present	Note
1 Hardware for stability computers is recommended to	1 Hardware for stability computers is recommended to	
be of approved type in accordance with the requirements of	be of approved type in accordance with the requirements of	
Chapter 2, Part 7 of the Guidance for the Approval and	Chapter 2, Part 7 of the Guidance for the Approval and	
Type Approval of Materials and Equipment for Marine	Type Approval of Materials and Equipment for Marine	
Use "APPROVAL OF USE OF LOADING COMPUTER	Use "APPROVAL OF USE OF LOADING COMPUTER	Wording correction
AND STABILITY COMPUTER".".	AND STABILITY COMPUTER".	

### Guidance for the survey and construction of steel ships Part D D1 D1.1.1-1

Correction	Present	Note
<b>1</b> In <b>Part D of the Rules</b> , "main propulsion machinery"	1 In Part D of the Rules, "main propulsion machinery"	
means the following machinery which generates or converts	means the following machinery which generates or converts	
motive power capable of propelling a ship at the speed	motive power capable of propelling a ship at the speed	
specified in 2.1.8, Part A of the Rules:	specified in 2.1.8, Part A of the Rules:	
(1) Reciprocating internal combustion engines (including	(1) Reciprocating internal combustion engines (including	
superchargers)	superchargers)	
(2) Steam turbines (including main condensers)	(2) Steam turbines (including main condensers)	
(3) Gas turbines (including combustors)	(3) Gas turbines (including combustors)	
(4) Generating plants for propulsion and motors for	(4) Generating plants for propulsion and motors for	
propulsion (excluding Chapter 18), Part D of the	propulsion (excluding Chapter 18)	Wording correction
<u>Rules)</u>		5

## Guidance for the survey and construction of steel ships Part D D2 D2.3.1-2

Correction	Present	Note
2 The diameters of crankpins and journals are to be not	2 The diameters of crankpins and journals are to be not	
less than the value given by the following formula:	less than the value given by the following formula:	
$d_c = \left\{ \left( M + \sqrt{M^2 + T^2} \right) D^2 \right\}^{\frac{1}{3}} K_m K_s K_h$	$d_{c} = \left\{ \left( M + \sqrt{M^{2} + T^{2}} \right) D^{2} \right\}^{\frac{1}{3}} K_{m} K_{s} K_{h}$	
where	where	
$d_c$ : Required diameter of crankshaft ( <i>mm</i> )	$d_c$ : Required diameter of crankshaft ( <i>mm</i> )	
$M : 10^{-2}ALP_{max}$	$M : 10^{-2} ALP_{max}$	
$T : 10^{-2}BSP_{mi}$	$T : 10^{-2}BSP_{mi}$	
S : Length of stroke ( <i>mm</i> )	<i>S</i> :Length of stroke ( <i>mm</i> )	
<i>L</i> :Span of bearings adjacent to crank measured	L : Span of bearings adjacent to crank measured	
from centre to centre ( <i>mm</i> )	from centre to centre ( <i>mm</i> )	
$P_{max}$ : Maximum combustion pressure in cylinder	<i>P<sub>max</sub></i> : Maximum combustion pressure in cylinder	
(MPa)	(MPa)	
$P_{mi}$ : Indicated mean effective pressure (MPa)	$P_{mi}$ : Indicated mean effective pressure (MPa)	
A and $B$ :	A and $B$ :	
Coefficients given in Table D2.3.1-2(1) to	Coefficients given in Table D2.3.1-2 for engines	Reference correction
D2.3.1-2(4) for engines having equal firing	having equal firing intervals (in the case of Vee	

- intervals (in the case of Vee type engines, those with equal firing intervals on each bank.). Special consideration will be given to values *A* and *B* for reciprocating internal combustion engines having unequal firing intervals or for those not covered by the Tables.
- *D* :Cylinder bore (*mm*)
- $K_m$ : Value given by the following (1) or (2) in accordance with the specified tensile strength of the crankshaft material. However, the value of  $K_m$ for materials other than steel forgings and steel castings is to be determined by the Society in each case.
- (1) In cases where the specified tensile strength of material exceeds 440  $N/mm^2$

$$K_m = \sqrt[3]{\frac{440}{440 + \frac{2}{3}(T_s - 440)}}$$

where

 $T_s$  : Specified tensile strength of material (*N/mm*<sup>2</sup>)

The value of  $T_s$  is not to exceed 760  $N/mm^2$  for carbon steel forgings and 1080  $N/mm^2$  for low alloy steel forgings.

(2) In cases where the specified tensile strength of material is not more than 440  $N/mm^2$  but not less than 400  $N/mm^2$ 

$$K_m = 1.0$$

- $K_s$ : Value given by the following (1), (2), or (3) in accordance with the manufacturing method of crankshafts.
- In cases where the crankshafts are manufactured by a special forging process approved by the Society as well as where the product quality is

type engines, those with equal firing intervals on each bank.). Special consideration will be given to values A and B for reciprocating internal combustion engines having unequal firing intervals or for those not covered by the Tables.

### *D* :Cylinder bore (*mm*)

- $K_m$ : Value given by the following (1) or (2) in accordance with the specified tensile strength of the crankshaft material. However, the value of  $K_m$ for materials other than steel forgings and steel castings is to be determined by the Society in each case.
- (1) In cases where the specified tensile strength of material exceeds  $440 N/mm^2$

$$K_m = \sqrt[3]{\frac{440}{440 + \frac{2}{3}(T_s - 440)}}$$

where

 $T_s$  : Specified tensile strength of material ( $N/mm^2$ )

The value of  $T_s$  is not to exceed 760  $N/mm^2$  for carbon steel forgings and 1080  $N/mm^2$  for low alloy steel forgings.

(2) In cases where the specified tensile strength of material is not more than 440  $N/mm^2$  but not less than 400  $N/mm^2$ 

$$K_m = 1.0$$

- $K_s$ :Value given by the following (1), (2), or (3) in accordance with the manufacturing method of crankshafts.
- (1) In cases where the crankshafts are manufactured by a special forging process approved by the Society as well as where the product quality is

stable and the fatigue strength is considered to be improved by 20 % or more in comparison with that of the free forging process

$$K_s = \sqrt[3]{\frac{1}{1.15}}$$

(2) In cases where the crankshafts are manufactured by a manufacturing process using a surface treatment approved by the Society as well as where the product quality is stable and the fatigue strength is recognized as being superior

$$K_s = \sqrt[3]{\frac{1}{1+\rho/100}}$$

where

- $\rho$ : Degree of improvement in strength approved by the Society relative to the surface hardening (%)
- (3) In cases other than (1) and (2) above

$$K_{s} = 1.0$$

- $K_h$ : Value given by the following (1) or (2) in accordance with the inside diameter of the crankpins or journals.
- (1) In cases where the inside diameter is one-third or more than that of the outside diameter

$$K_h = \sqrt[3]{\frac{1}{1 - R^4}}$$

where

- R : Quotient obtained by dividing the inside diameter of a hollow shaft by its outside diameter
- (2) In cases where the inside diameter is less than

stable and the fatigue strength is considered to be improved by 20 % or more in comparison with that of the free forging process

$$K_s = \sqrt[3]{\frac{1}{1.15}}$$

(2) In cases where the crankshafts are manufactured by a manufacturing process using a surface treatment approved by the Society as well as where the product quality is stable and the fatigue strength is recognized as being superior

$$K_s = \sqrt[3]{\frac{1}{1+\rho/100}}$$

where

- $\rho$ : Degree of improvement in strength approved by the Society relative to the surface hardening (%)
- (3) In cases other than (1) and (2) above

$$K_{s} = 1.0$$

- $K_h$ : Value given by the following (1) or (2) in accordance with the inside diameter of the crankpins or journals.
- (1) In cases where the inside diameter is one-third or more than that of the outside diameter

$$K_h = \sqrt[3]{\frac{1}{1 - R^4}}$$

where

- R : Quotient obtained by dividing the inside diameter of a hollow shaft by its outside diameter
- (2) In cases where the inside diameter is less than

one-third of the outside diameter	one-third of the outside diameter	
$K_{h} = 1.0$	$K_h = 1.0$	

#### Guidance for the survey and construction of steel ships Part D D2 D2.3.1-3

	Correction				Present	Note
	Table	D2.3.1-3 Coeff	ficient of Allo	wable Stress at Fillet		Wording correction
	Stroke cycle	Type of	Shaft diameter	$pr \phi^{(1)}(mm)$		
$\sigma_a$	of engine	crankshaft	$d \ge 200$	$200 > d \ge 100$	100 > d	
$(N/mm^2)$	2-cycle	Semi-built-up	54			
		Solid	74	142-0.34 <i>d</i>	108	
	4-cycle	Solid	83	133-0.25 <i>d</i>		
$f_m$			$1 + \frac{2}{3} \left( \frac{T_s^{(2)}}{440} \right)$	$(\frac{1}{2}-1)$		
	Manufacturing method					
	Ordinary method	Method (1) for $K_s$		Method (2) for $K_s$		
$f_s$		specified in D2.3.1-2	2	specified in D2.3.1	<u>l</u> -2	
	1	1.15		$1+ ho^{(3)}/100$		
α	Main bearing mater	Main bearing material				
$(N/mm^2)$	White metal		I	Aluminum or kelmet		
	0		1	0		

### Guidance for the survey and construction of steel ships Part D D2 D2.3.2-3

Correction	Present	Note
<b>3</b> The wording "maximum torque at the shrinkage fit" in	3 The wording "maximum torque at the shrinkage fit" in	
-2(2) above means, in principle, $M_{Tmax}$ shown in 1.3.2-1 of the Anney 2.3.1 Part D of the Rules "CALCULATON"	-2(2) above means, in principle, $M_{T \max}$ shown in 1.3.2-1 of	W7 1.
the Annex 2.3.1 Part D of the Rules "CALCULATON	the Annex 2.3.1 "CALCULATON METHOD OF	Wording correction
METHOD OF CRANKSHAFT STRESS".	CRANKSHAFT STRESS".	

## Guidance for the survey and construction of steel ships Part D D2 D2.3.2-6

Correction	Present	Note
6 In cases where the dimensions of crankwebs fail to		
meet the requirements in $-4(1)$ , they may be acceptable		
provided that either the following (1) or (2) is satisfied.	provided that either the following (1) or (2) is satisfied.	
(1) In cases where the maximum torque at the shrinkage	(1) In cases where the maximum torque at the shrinkage	
fit is evaluated without carrying out a forced vibration	fit is evaluated without carrying out a forced vibration	
calculation including the stern shaftings: $1^2 + D = 5$ (TTD <sup>2</sup> )	calculation including the stern shaftings:	
$d_h^2 t P_m \ge CTD^2$	$d_h^2 t P_m \ge CTD^2$	
where	where	
C: 103 for 2-stroke cycle in-line engines	C: 103 for 2-stroke cycle in-line engines	
165 for 4-stroke cycle in-line engines $P_m$ : Surface pressure at shrinkage fit, as given by	165 for 4-stroke cycle in-line engines $P_m$ : Surface pressure at shrinkage fit, as given by	
$P_m$ : Surface pressure at shrinkage fit, as given by the following formula	$P_m$ : Surface pressure at shrinkage fit, as given by the following formula	
$P_m = Y\left\{\log_e K + \frac{1}{2}\left(1 - \frac{K^2}{r_s^2}\right)\right\}(1 - R^2)$	$P_m = Y\left\{\log_e K + \frac{1}{2}\left(1 - \frac{K^2}{r_s^2}\right)\right\}(1 - R^2)$	
$K = 0.9 \sqrt{\frac{206\alpha}{Y} + 0.25}$	$K = 0.9\sqrt{\frac{206\alpha}{Y} + 0.25}$	
(2) In cases where the maximum torque at the shrinkage	(2) In cases where the maximum torque at the shrinkage	
fit is evaluated by carrying out a forced vibration	fit is evaluated by carrying out a forced vibration	
calculation including the stern shaftings:	calculation including the stern shaftings:	
$\alpha \geq \frac{4 \times 10^3 S_R M_{T \max} \left(1 - \frac{R^2}{r_s^2}\right)}{\pi \mu E d_h^2 t \left(1 - \frac{1}{r^2}\right) \left(1 - R^2\right)}$	$\alpha \geq \frac{4 \times 10^3 S_R M_{T \max} \left(1 - \frac{R^2}{r_s^2}\right)}{\pi \mu E d_h^2 t \left(1 - \frac{1}{r^2}\right) (1 - R^2)}$	
$\pi\mu E d_h^2 t \left(1 - \frac{1}{r_s^2}\right) \left(1 - R^2\right)$	$\pi\mu E d_h^2 t \left(1 - \frac{1}{r_s^2}\right) \left(1 - R^2\right)$	
where	where	
$M_{T \max}$ : Maximum torque at shrinkage fit, as	$M_{T\max}$ : Maximum torque at shrinkage fit, as	
shown in 1.3.2-1 of the Annex 2.3.1	shown in 1.3.2-1 of the Annex 2.3.1	117 1.
Part D of the Rules "CALCULATION METHOD OF	"CALCULATION METHOD OF CDANKSHAFT STDESS"(MARK)	Wording correction
CRANKSHAFT STRESS" $(N \cdot m)$	<b>CRANKSHAFT STRESS</b> "( $N \cdot m$ )	

<i>E</i> : Modulus of longitudinal elasticity ( $N/mm^2$ )	<i>E</i> : Modulus of longitudinal elasticity $(N/mm^2)$
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### Guidance for the survey and construction of steel ships Part D D2 D2.3.3

Correction	Correction Correction Construction of Steel Ships Part D D2 D2.3.3			
The wording "to be of sufficient strength" in 2.3.3-2,	The wording "to be of sufficient strength" in 2.3.3-2,			
Part D of the Rules means to be in accordance with the	Part D of the Rules means to be in accordance with the			
following (1) or (2):	following (1) or (2):			
(1) The thickness of shaft coupling flanges at the pitch	(1) The thickness of shaft coupling flanges at the pitch			
circle of the bolt holes is to be not less than the	circle of the bolt holes is to be not less than the			
diameter of the bolts determined by the formula in	diameter of the bolts determined by the formula in			
<b>2.3.3-1, Part D of the Rules</b> by using $440 N/mm^2$ for	<b>2.3.3-1, Part D of the Rules</b> by using 440 N/mm <sup>2</sup> for			
$T_b$ . The radius at the fillet transition between the	$T_b$ . The radius at the fillet transition between the			
flange and shaft is to be not less than 0.08 times the	flange and shaft is to be not less than 0.08 times the			
shaft diameter. In this case, the fillet is not to be	shaft diameter. In this case, the fillet is not to be			
recessed in way of the bolt heads and nuts.	recessed in way of the bolt heads and nuts.			
(2) Detailed calculation sheets for the strength of	(2) Detailed calculation sheets for the strength of			
couplings (for the procedures and contents of these	couplings (for the procedures and contents of these			
calculations, the following (a) to (f) are to be	calculations, the following (a) to (f) are to be			
considered as standards) are to be submitted to the	considered as standards) are to be submitted to the			
Society for approval. In this case, it is to be verified	Society for approval. In this case, it is to be verified			
that the thickness of the coupling flange is larger than	that the thickness of the coupling flange is larger than			
the diameter of the bolts determined by the formula in	the diameter of the bolts determined by the formula in			
<b>2.3.3-1, Part D of the Rules</b> using the tensile strength	2.3.3-1, Part D of the Rules using the tensile strength			
of the bolt material assumed to be equivalent to the	of the bolt material assumed to be equivalent to the			
tensile strength of the crankshaft material.	tensile strength of the crankshaft material.			
(a) With the procedures specified in the following	(a) With the procedures specified in the following			
(b) to (f), it is to be verified that the stress at the	(b) to (f), it is to be verified that the stress at the			
coupling is less than the allowable value. As the	coupling is less than the allowable value. As the			
stress value in this case, comparisons are to be	stress value in this case, comparisons are to be			
made by applying appropriate safety factors for	made by applying appropriate safety factors for			
yield points for bending stress, bending fatigue	yield points for bending stress, bending fatigue			
limits, yield points for torsional stress and	limits, yield points for torsional stress and			
torsional fatigue limits of the crankshaft material	torsional fatigue limits of the crankshaft material			
considering four types of stress, such as the	considering four types of stress, such as the			

<ul> <li>maximum bending stress, the maximum torsional stress and fluctuating torsional stress.</li> <li>(b) The maximum bending moment and fluctuating bending moment of this portion are to be determined in accordance with the requirements specified in the Annex D2.3.1 "GUIDANCE FOR CALCULATION OF CRANKSHAFT STRESS" or Annex 2.3.1. <u>"CALCULATION OF CRANKSHAFT STRESS" or Annex 2.3.1. <u>"CALCULATION OF CRANKSHAFT STRESS" or Annex 2.3.1. <u>"CALCULATION OF CRANKSHAFT STRESS" Mean torque of this portion is to be determined.</u></u></u></li> <li>(c) Torsional vibratory torque is to be determined in the preceding sub-paragraph (b), the sum is to be taken as the fluctuating torque value. When the torsional vibratory torque value at this portion calculations, the calculated torsional vibratory torque value at the torsional vibratory torque value at the torsional vibratory torque value at the spective dates the torsional vibratory torque value at the spective deflection angles of the crankshaft for respective cases are to be determined.</li> <li>(e) Bending moments in magnitudes that cause the coupling flange of the crankshaft to assume the respective deflection angles determined in the preceding sub-paragraph (d) are to be</li> </ul>					
<ul> <li>fluctuating torsional stress.</li> <li>(b) The maximum bending moment and fluctuating bending moment of this portion are to be determined in accordance with the requirements specified in the Annex D2.3.1 "GUIDANCE FOR CALCULATION OF CRANKSHAFT STRESS" or Annex 2.3.1. <u>Part D of the Rules</u> specified in the Annex D2.3.1 "GUIDANCE FOR CALCULATION METHOD OF CRANKSHAFT STRESS." Mean torque of this portion is to be determined.</li> <li>(c) Torsional vibratory torque is to be determined by inverse operations from the allowable torsional vibratory torque value. Which is to be taken as the fluctuating torque value.</li> <li>By adding the fluctuating torque value, thus determined, to the mean torque value. (When the torsional vibratory torque value. (When the torsional vibratory torque value at this portion can be accurately determined through detailed torsional vibratory torque value.)</li> <li>(d) From the maximum bending moment and fluctuating bending moment of this portion, and the rigidity of the crankshaft, deflection angles of the crankshaft to respective cases are to be determined.</li> <li>(e) Bending moments in magnitudes that cause the coupling flange of the crankshaft to assume the respective deflection angles determined in the perceive deflection angles determined in the regiding of the crankshaft to assume the respective deflection angles determined in the respective deflection angles determined in</li></ul>		• • •			
<ul> <li>(b) The maximum bending moment and fluctuating bending moment of this portion are to be determined in accordance with the requirements specified in the Annex D2.3.1 "GUIDANCE FOR CALCULATION OF CRANKSHAFT STRESS." Mean torque of this portion is to be neares 2.3.1 "GUIDANCE FOR CALCULATION METHOD OF CRANKSHAFT STRESS." Mean torque of this portion is to be determined.</li> <li>(c) Torsional vibratory torque is to be determined by inverse operations from the allowable torsional vibratory stress value, which is to be taken as the fluctuating torque value. By adding the fluctuating torque value determined in the preceding sub-paragraph (b), the sum is to be taken as the maximum torque value determined to the mean torque value determined in the preceding sub-paragraph (b), the sum is to be taken as the maximum torque value (When the torsional vibratory torque value.)</li> <li>(d) From the maximum bending moment and fluctuating bending moment of this portion, and the rigidity of the crankshaft deflection angles of the crankshaft to assume the respective deflection angles determined in the reguirements in magnitudes that cause the coupling flange of the crankshaft to assume the respective deflection angles determined in the re</li></ul>		· · · · · · · · · · · · · · · · · · ·			
<ul> <li>bending moment of this portion are to be determined in accordance with the requirements specified in the Annex D2.3.1 "GUIDANCE FOR CALCULATION OF CRANKSHAFT STRESS" or Annex 2.3.1, <u>Part D of the Rules</u> we chall calculated torsional vibratory torque is to be determined.</li> <li>(c) Torsional vibratory torque is to be determined in the preceding sub-paragraph (b), the sum is to be taken as the maximum torque value. (When the torsional vibratory torque value determined in the preceding sub-paragraph (b), the sum is to be taken as the maximum torque value. (When the torsional vibratory torque value determined in the preceding sub-paragraph (b), the sum is to be taken as the maximum torque value. (When the torsional vibratory torque value.)</li> <li>(d) From the maximum bending moment and fluctuating bending moment of this portion, and the rigidity of the crankshaft, deflection angles of the crankshaft, deflection angles of the crankshaft, deflection angles of the crankshaft to assume the respective deflection angles determined in the preceding of the crankshaft to assume the respective deflection angles determined in the preceding noments in magnitudes that cause the coupling flange of the crankshaft to assume the respective deflection angles determined in the</li> </ul>		6			
<ul> <li>determined in accordance with the requirements specified in the Annex D2.3.1 "GUIDANCE FOR CALCULATION OF CRANKSHAFT STRESS" or Annex 2.3.1, <u>Part D of the Rules</u> "CALCULATION METHOD OF CRANKSHAFT STRESS." Mean torque of this portion is to be determined by inverse operations from the allowable torsional vibratory torque is to be determined in the preceding sub-paragraph (b), the sum is to be taken as the fluctuating torque value. (When the torsional vibratory torque value determined, to the mean torque value determined in the preceding sub-paragraph (b), the sum is to be taken as the fluctuating torque value. (When the torsional vibratory torque value at this portion can be accurately determined into preceding sub-paragraph (b), the sum is to be taken as the crossional vibratory torque value at this portion can be accurately determined in the preceding sub-paragraph (b), the sum is to be taken as the torsional vibratory torque value. (When the torsional vibratory torque value. (When the torsional vibratory torque value).</li> <li>(d) From the maximum bending moment and fluctuating bending moment and fluctuating bending moment and the rigidity of the crankshaft, deflection angles of the crankshaft, deflection angles of the crankshaft to assume the respective deflection angles determined in the respective deflect</li></ul>	(b)	6 6	(b)		
<ul> <li>specified in the Annex D2.3.1 "GÚIDANCE FOR CALCULATION OF CRANKSHAFT STRESS" or Annex 2.3.1. "GÚIDANCE FOR CALCULATION OF CRANKSHAFT STRESS" or Annex 2.3.1. "GÚIDANCE FOR CALCULATION OF CRANKSHAFT</li> <li>specified in the Annex D2.3.1 "GÚIDANCE FOR CALCULATION OF CRANKSHAFT</li> <li>specified in the Annex 2.3.1. "GÚIDANCE FOR CALCULATION OF CRANKSHAFT</li> <li>specified in the Annex 2.3.1. "GÚIDANCE FOR CALCULATION OF CRANKSHAFT</li> <li>specified in the Annex 2.3.1. "GÚIDANCE FOR CALCULATION OF CRANKSHAFT</li> <li>specified in the Annex 2.3.1 "GÚIDANCE FOR CALCULATION OF CRANKSHAFT</li> <li>specified in the Annex 2.3.1 "GÚIDANCE FOR CALCULATION OF CRANKSHAFT</li> <li>specified in the Annex 2.3.1 "GÚIDANCE FOR CALCULATION OF CRANKSHAFT</li> <li>specified in the Annex 2.3.1 "GUIDANCE FOR CALCULATION OF CRANKSHAFT</li> <li>specified in the Annex 2.3.1 "GUIDANCE FOR CALCULATION OF CRANKSHAFT</li> <li>specified in the Annex 2.3.1 "GUIDANCE FOR CALCULATION OF CRANKSHAFT</li> <li>specified in the Annex 2.3.1 "GUIDANCE FOR CALCULATION OF CRANKSHAFT</li> <li>specified in the Annex 2.3.1 "CALCULATION OF CRANKSHAFT</li> <li>specified in the Annex 2.3.1 "CLULATION</li> <li>specified in the Annex 2.3.1 "CALCULATION</li> <li>specified in the field torsional</li></ul>		bending moment of this portion are to be		bending moment of this portion are to be	
<ul> <li>FOR CALCULATION OF CRANKSHAFT STRESS" or Annex 2.3.1. <u>Part D of the Rules</u></li> <li>"CALCULATION METHOD OF CRANKSHAFT STRESS." Mean torque of this portion is to be determined.</li> <li>(c) Torsional vibratory torque is to be determined by inverse operations from the allowable torsional vibratory stress value, which is to be taken as the fluctuating torque value. By adding the fluctuating torque value, thus determined, to the mean torque value determined torsional vibratory torque value at this portion can be accurately determined through detailed torque may be used as the torsional vibratory torque value.)</li> <li>(d) From the maximum bending moment and fluctuating bending moment of this portion, can be accurately determined through detailed torsional vibration calculations, the calculated torque may be used as the torsional vibratory torque value.)</li> <li>(d) From the maximum bending moment and fluctuating bending moments in magnitudes that cause the coupling flange of the crankshaft to assume the respective deflection angles determined in the</li> </ul>		determined in accordance with the requirements		determined in accordance with the requirements	
<ul> <li>STRESS" or Annex 2.3.1. Part D of the Rules "CALCULATION METHOD OF CRANKSHAFT STRESS." Mean torque of this portion is to be determined.</li> <li>(c) Torsional vibratory torque is to be determined by inverse operations from the allowable torsional vibratory stress value, which is to be taken as the fluctuating torque value. By adding the fluctuating torque value, thus determined, to the mean torque value ettermined in the preceding sub-paragraph (b), the sum is to be taken as the maximum torque value (When the torsional vibratory torque value at this portion can be accurately determined through detailed torsional vibration calculations, the calculated torque may be used as the torsional vibratory torque value.)</li> <li>(d) From the maximum bending moment and fluctuating bending moment of this portion, and the rigidity of the crankshaft, deflection angles of the crankshaft for respective cases are to be determined.</li> <li>(e) Bending moments in magnitudes that cause the coupling flange of the crankshaft to assume the respective deflection angles determined in the</li> </ul>		specified in the Annex D2.3.1 "GUIDANCE		specified in the Annex D2.3.1 "GUIDANCE	
<ul> <li>"CALCULATION METHOD OF CRANKSHAFT STRESS." Mean torque of this portion is to be determined.</li> <li>(c) Torsional vibratory torque is to be determined by inverse operations from the allowable torsional vibratory stress value, which is to be taken as the fluctuating torque value.</li> <li>By adding the fluctuating torque value, thus determined, to the mean torque value determined in the preceding sub-paragraph (b), the sum is to be taken as the maximum torque value. (When the torsional vibratory torque value at this portion can be accurately determined through detailed torsional vibration calculations, the calculated torque may be used as the torsional vibratory torque value.)</li> <li>(d) From the maximum bending moment and fluctuating bending moment of this portion, and the rigidity of the crankshaft for respective cases are to be determined.</li> <li>(e) Bending moments in magnitudes that cause the coupling flange of the crankshaft to assume the respective deflection angles determined in the</li> </ul>		FOR CALCULATION OF CRANKSHAFT		FOR CALCULATION OF CRANKSHAFT	
<ul> <li>"CALCULATION METHOD OF CRANKSHAFT STRESS." Mean torque of this portion is to be determined.</li> <li>(c) Torsional vibratory torque is to be determined by inverse operations from the allowable torsional vibratory stress value, which is to be taken as the fluctuating torque value.</li> <li>By adding the fluctuating torque value, thus determined, to the mean torque value determined in the preceding sub-paragraph (b), the sum is to be taken as the maximum torque value. (When the torsional vibratory torque value at this portion can be accurately determined through detailed torsional vibration calculations, the calculated torque may be used as the torsional vibratory torque value.)</li> <li>(d) From the maximum bending moment and fluctuating bending moment of this portion, and the rigidity of the crankshaft for respective cases are to be determined.</li> <li>(e) Bending moments in magnitudes that cause the coupling flange of the crankshaft to assume the respective deflection angles determined in the</li> </ul>		STRESS" or Annex 2.3.1, Part D of the Rules		STRESS" or Annex 2.3.1 "CALCULATION	Wording correction
<ul> <li>portion is to be determined.</li> <li>(c) Torsional vibratory troque is to be determined by inverse operations from the allowable torsional vibratory stress value, which is to be taken as the fluctuating torque value. By adding the fluctuating torque value, thus determined, to the mean torque value determined in the preceding sub-paragraph (b), the sum is to be taken as the maximum torque value. (When the torsional vibratory torque value at this portion can be accurately determined through detailed torsional vibratory torque value.)</li> <li>(d) From the maximum bending moment and fluctuating bending moment of this portion, and the rigidity of the crankshaft for respective cases are to be determined.</li> <li>(e) Bending moments in magnitudes that cause the coupling flange of the crankshaft to assume the respective deflection angles determined in the</li> </ul>		"CALCULATION METHOD OF		METHOD OF CRANKSHAFT STRESS."	5
<ul> <li>(c) Torsional vibratory torque is to be determined by inverse operations from the allowable torsional vibratory stress value, which is to be taken as the fluctuating torque value. By adding the fluctuating torque value, thus determined, to the mean torque value determined in the preceding sub-paragraph (b), the sum is to be taken as the maximum torque value. (When the torsional vibratory torque value at this portion can be accurately determined through detailed torsional vibration calculations, the calculated torque may be used as the torsional vibratory torque value.)</li> <li>(d) From the maximum bending moment and fluctuating bending moment of this portion, and the rigidity of the crankshaft for respective cases are to be determined.</li> <li>(e) Bending moments in magnitudes that cause the coupling flange of the crankshaft to assume the respective deflection angles determined in the</li> </ul>		CRANKSHAFT STRESS." Mean torque of this		Mean torque of this portion is to be determined.	
<ul> <li>inverse operations from the allowable torsional vibratory stress value, which is to be taken as the fluctuating torque value. By adding the fluctuating torque value, thus determined, to the mean torque value determined in the preceding sub-paragraph (b), the sum is to be taken as the maximum torque value. (When the torsional vibratory torque value at this portion can be accurately determined torsional vibratory torque value. (When the torsional vibratory torque value at this portion can be accurately determined torque may be used as the torsional vibratory torque value.)</li> <li>(d) From the maximum bending moment and fluctuating bending moment of this portion, and the rigidity of the crankshaft, deflection angles of the crankshaft for respective deflection angles determined in the respective deflection angles determined in the</li> </ul>		portion is to be determined.			
<ul> <li>vibratory stress value, which is to be taken as the fluctuating torque value. By adding the fluctuating torque value, thus determined, to the mean torque value determined in the preceding sub-paragraph (b), the sum is to be taken as the maximum torque value. (When the torsional vibratory torque value at this portion can be accurately determined through detailed torsional vibration calculations, the calculated torque may be used as the torsional vibratory torque value.)</li> <li>(d) From the maximum bending moment and fluctuating bending moment of this portion, and the rigidity of the crankshaft deflection angles of the crankshaft for respective cases are to be determined.</li> <li>(e) Bending moments in magnitudes that cause the coupling flange of the crankshaft to assume the respective deflection angles determined in the</li> </ul>	(c)	Torsional vibratory torque is to be determined by	(c)	Torsional vibratory torque is to be determined by	
<ul> <li>fluctuating torque value.</li> <li>By adding the fluctuating torque value, thus determined, to the mean torque value determined in the preceding sub-paragraph (b), the sum is to be taken as the maximum torque value. (When the torsional vibratory torque value at this portion can be accurately determined through detailed torsional vibration calculations, the calculated torque may be used as the torsional vibratory torque value.)</li> <li>(d) From the maximum bending moment and fluctuating bending moment of this portion, and the rigidity of the crankshaft, deflection angles of the crankshaft for respective cases are to be determined.</li> <li>(e) Bending moments in magnitudes that cause the coupling flange of the crankshaft to assume the respective deflection angles determined in the</li> </ul>		inverse operations from the allowable torsional		inverse operations from the allowable torsional	
<ul> <li>fluctuating torque value.</li> <li>By adding the fluctuating torque value, thus determined, to the mean torque value determined in the preceding sub-paragraph (b), the sum is to be taken as the maximum torque value. (When the torsional vibratory torque value at this portion can be accurately determined through detailed torsional vibration calculations, the calculated torque may be used as the torsional vibratory torque value.)</li> <li>(d) From the maximum bending moment and fluctuating bending moment of this portion, and the rigidity of the crankshaft, deflection angles of the crankshaft for respective cases are to be determined.</li> <li>(e) Bending moments in magnitudes that cause the coupling flange of the crankshaft to assume the respective deflection angles determined in the</li> </ul>		vibratory stress value, which is to be taken as the		vibratory stress value, which is to be taken as the	
<ul> <li>determined, to the mean torque value determined in the preceding sub-paragraph (b), the sum is to be taken as the maximum torque value. (When the torsional vibratory torque value at this portion can be accurately determined through detailed torsional vibration calculations, the calculated torque may be used as the torsional vibratory torque value.)</li> <li>(d) From the maximum bending moment of this portion, and fluctuating bending moment of this portion, and the rigidity of the crankshaft for respective cases are to be determined.</li> <li>(e) Bending moments in magnitudes that cause the coupling flange of the crankshaft to assume the respective deflection angles determined in the</li> </ul>					
<ul> <li>determined, to the mean torque value determined in the preceding sub-paragraph (b), the sum is to be taken as the maximum torque value. (When the torsional vibratory torque value at this portion can be accurately determined through detailed torsional vibration calculations, the calculated torque may be used as the torsional vibratory torque value.)</li> <li>(d) From the maximum bending moment of this portion, and fluctuating bending moment of this portion, and the rigidity of the crankshaft for respective cases are to be determined.</li> <li>(e) Bending moments in magnitudes that cause the coupling flange of the crankshaft to assume the respective deflection angles determined in the</li> </ul>		By adding the fluctuating torque value, thus		By adding the fluctuating torque value, thus	
<ul> <li>in the preceding sub-paragraph (b), the sum is to be taken as the maximum torque value. (When the torsional vibratory torque value at this portion can be accurately determined through detailed torsional vibration calculations, the calculated torque may be used as the torsional vibratory torque value.)</li> <li>(d) From the maximum bending moment and fluctuating bending moment of this portion, and the rigidity of the crankshaft, deflection angles of the crankshaft for respective cases are to be determined.</li> <li>(e) Bending moments in magnitudes that cause the coupling flange of the crankshaft to assume the respective deflection angles determined in the</li> </ul>				determined, to the mean torque value determined	
<ul> <li>the torsional vibratory torque value at this portion can be accurately determined through detailed torsional vibration calculations, the calculated torque may be used as the torsional vibratory torque value.)</li> <li>(d) From the maximum bending moment and fluctuating bending moment of this portion, and the rigidity of the crankshaft, deflection angles of the crankshaft for respective cases are to be determined.</li> <li>(e) Bending moments in magnitudes that cause the coupling flange of the crankshaft to assume the respective deflection angles determined in the</li> <li>(b) Bending moments in magnitudes that cause the coupling flange of the crankshaft to assume the respective deflection angles determined in the</li> </ul>				in the preceding sub-paragraph (b), the sum is to	
<ul> <li>can be accurately determined through detailed torsional vibration calculations, the calculated torque may be used as the torsional vibratory torque value.)</li> <li>(d) From the maximum bending moment and fluctuating bending moment of this portion, and the rigidity of the crankshaft, deflection angles of the crankshaft for respective cases are to be determined.</li> <li>(e) Bending moments in magnitudes that cause the coupling flange of the crankshaft to assume the respective deflection angles determined in the</li> <li>(can be accurately determined through detailed torsional vibratory torque walue.)</li> <li>(can be accurately determined through detailed torsional vibratory torque walue.)</li> <li>(can be accurately determined through detailed torsional vibratory torque walue.)</li> <li>(can be accurately determined through detailed torsional vibratory torque walue.)</li> <li>(can be accurately determined through detailed torsional vibratory torque walue.)</li> <li>(can be accurately determined through detailed torsional vibratory torque walue.)</li> <li>(can be accurately determined through detailed torsional vibratory torque walue.)</li> <li>(can be accurately determined through detailed torsional vibratory torque walue.)</li> <li>(can be accurately determined through detailed torsional vibratory torque walue.)</li> <li>(can be accurately determined in the respective deflection angles determined in t</li></ul>		be taken as the maximum torque value. (When		be taken as the maximum torque value. (When	
<ul> <li>can be accurately determined through detailed torsional vibration calculations, the calculated torque may be used as the torsional vibratory torque value.)</li> <li>(d) From the maximum bending moment and fluctuating bending moment of this portion, and the rigidity of the crankshaft, deflection angles of the crankshaft for respective cases are to be determined.</li> <li>(e) Bending moments in magnitudes that cause the coupling flange of the crankshaft to assume the respective deflection angles determined in the</li> <li>(can be accurately determined through detailed torsional vibratory torque walue.)</li> <li>(can be accurately determined through detailed torsional vibratory torque walue.)</li> <li>(can be accurately determined through detailed torsional vibratory torque walue.)</li> <li>(can be accurately determined through detailed torsional vibratory torque walue.)</li> <li>(can be accurately determined through detailed torsional vibratory torque walue.)</li> <li>(can be accurately determined through detailed torsional vibratory torque walue.)</li> <li>(can be accurately determined through detailed torsional vibratory torque walue.)</li> <li>(can be accurately determined through detailed torsional vibratory torque walue.)</li> <li>(can be accurately determined through detailed torsional vibratory torque walue.)</li> <li>(can be accurately determined in the respective deflection angles determined in t</li></ul>		the torsional vibratory torque value at this portion		the torsional vibratory torque value at this portion	
<ul> <li>torsional vibration calculations, the calculated torque may be used as the torsional vibratory torque value.)</li> <li>(d) From the maximum bending moment and fluctuating bending moment of this portion, and the rigidity of the crankshaft, deflection angles of the crankshaft for respective cases are to be determined.</li> <li>(e) Bending moments in magnitudes that cause the coupling flange of the crankshaft to assume the respective deflection angles determined in the</li> <li>(b) Bending moments in magnitudes that cause the coupling flange of the crankshaft to assume the respective deflection angles determined in the</li> </ul>		can be accurately determined through detailed			
<ul> <li>torque value.)</li> <li>(d) From the maximum bending moment and fluctuating bending moment of this portion, and the rigidity of the crankshaft, deflection angles of the crankshaft for respective cases are to be determined.</li> <li>(e) Bending moments in magnitudes that cause the coupling flange of the crankshaft to assume the respective deflection angles determined in the</li> <li>(b) Trom the maximum bending moment and fluctuating bending moment of this portion, and the rigidity of the crankshaft, deflection angles of the crankshaft for respective cases are to be determined.</li> <li>(c) Bending moments in magnitudes that cause the coupling flange of the crankshaft to assume the respective deflection angles determined in the</li> <li>(d) From the maximum bending moment and fluctuating bending moment of this portion, and the rigidity of the crankshaft, deflection angles of the crankshaft to assume the respective deflection angles determined in the</li> </ul>		torsional vibration calculations, the calculated		torsional vibration calculations, the calculated	
<ul> <li>torque value.)</li> <li>(d) From the maximum bending moment and fluctuating bending moment of this portion, and the rigidity of the crankshaft, deflection angles of the crankshaft for respective cases are to be determined.</li> <li>(e) Bending moments in magnitudes that cause the coupling flange of the crankshaft to assume the respective deflection angles determined in the</li> <li>(b) Trom the maximum bending moment and fluctuating bending moment of this portion, and the rigidity of the crankshaft, deflection angles of the crankshaft for respective cases are to be determined.</li> <li>(c) Bending moments in magnitudes that cause the coupling flange of the crankshaft to assume the respective deflection angles determined in the</li> <li>(d) From the maximum bending moment and fluctuating bending moment of this portion, and the rigidity of the crankshaft, deflection angles of the crankshaft to assume the respective deflection angles determined in the</li> </ul>		torque may be used as the torsional vibratory		torque may be used as the torsional vibratory	
<ul> <li>fluctuating bending moment of this portion, and the rigidity of the crankshaft, deflection angles of the crankshaft for respective cases are to be determined.</li> <li>(e) Bending moments in magnitudes that cause the coupling flange of the crankshaft to assume the respective deflection angles determined in the</li> <li>fluctuating bending moment of this portion, and the rigidity of the crankshaft, deflection angles of the respective cases are to be determined.</li> <li>(e) Bending moments in magnitudes that cause the coupling flange of the crankshaft to assume the respective deflection angles determined in the</li> </ul>				torque value.)	
<ul> <li>fluctuating bending moment of this portion, and the rigidity of the crankshaft, deflection angles of the crankshaft for respective cases are to be determined.</li> <li>(e) Bending moments in magnitudes that cause the coupling flange of the crankshaft to assume the respective deflection angles determined in the</li> <li>fluctuating bending moment of this portion, and the rigidity of the crankshaft, deflection angles of the crankshaft for respective cases are to be determined.</li> <li>(e) Bending moments in magnitudes that cause the coupling flange of the crankshaft to assume the respective deflection angles determined in the</li> </ul>	(d)	From the maximum bending moment and	(d)	From the maximum bending moment and	
<ul> <li>the crankshaft for respective cases are to be determined.</li> <li>(e) Bending moments in magnitudes that cause the coupling flange of the crankshaft to assume the respective deflection angles determined in the</li> <li>the crankshaft for respective cases are to be determined.</li> <li>(e) Bending moments in magnitudes that cause the coupling flange of the crankshaft to assume the respective deflection angles determined in the</li> </ul>				fluctuating bending moment of this portion, and	
<ul> <li>the crankshaft for respective cases are to be determined.</li> <li>(e) Bending moments in magnitudes that cause the coupling flange of the crankshaft to assume the respective deflection angles determined in the</li> <li>the crankshaft for respective cases are to be determined.</li> <li>(e) Bending moments in magnitudes that cause the coupling flange of the crankshaft to assume the respective deflection angles determined in the</li> </ul>		the rigidity of the crankshaft, deflection angles of		the rigidity of the crankshaft, deflection angles of	
<ul> <li>(e) Bending moments in magnitudes that cause the coupling flange of the crankshaft to assume the respective deflection angles determined in the</li> <li>(e) Bending moments in magnitudes that cause the coupling flange of the crankshaft to assume the respective deflection angles determined in the</li> </ul>					
coupling flange of the crankshaft to assume the respective deflection angles determined in the respective deflection angles determined in the		determined.		determined.	
coupling flange of the crankshaft to assume the respective deflection angles determined in the respective deflection angles determined in the	(e)	Bending moments in magnitudes that cause the	(e)	Bending moments in magnitudes that cause the	
preceding sub-paragraph (d) are to be preceding sub-paragraph (d) are to be		respective deflection angles determined in the		respective deflection angles determined in the	
		preceding sub-paragraph (d) are to be		preceding sub-paragraph (d) are to be	

	determined, and the maximum bending stress and		determined, and the maximum bending stress and	
	fluctuating bending stress of this portion are to be		fluctuating bending stress of this portion are to be	
	determined by dividing above by the section		determined by dividing above by the section	
	modulus of the coupling flange.		modulus of the coupling flange.	
(f)	Respective tangential forces are to be determined	(f)	Respective tangential forces are to be determined	
	by dividing the maximum torque value and		by dividing the maximum torque value and	
	fluctuating torque value determined in the		fluctuating torque value determined in the	
	preceding sub-paragraph (c) by the diameter of		preceding sub-paragraph (c) by the diameter of	
	the crankshaft at the root of the coupling flange.		the crankshaft at the root of the coupling flange.	
	The maximum torsional stress and fluctuating		The maximum torsional stress and fluctuating	
	torsional stress are to be determined by dividing		torsional stress are to be determined by dividing	
	the above tangential forces by the sectional area		the above tangential forces by the sectional area	
	of the coupling flange (crankshaft diameter		of the coupling flange (crankshaft diameter	
	$\times \pi \times$ flange thickness) at the root, and by		$\times \pi \times$ flange thickness) at the root, and by	
	multiplying the stress concentration factor.		multiplying the stress concentration factor.	

## Guidance for the survey and construction of steel ships Part D D2 D2.6.1-5

Correction	Present	Note
5 The wording "a procedure deemed appropriate by the Society" in 2.6.1-87, Part D of the Rules means the tests	Society" in 2.6.1-8, Part D of the Rules means the tests	
specified in Chapter 11, Part 6 of the Guidance for the Approval and Type Approval of Materials and Equipment for Marine Use.	1 1 /	wording correction

## Guidance for the survey and construction of steel ships Part D D5 D5.3.1

Correction	Present	Note
In the case of bevel gear, the wording "deemed appropriate by the Society" in 5.3.1, Part D of the Rules means as follows: (1) The bending stress at the root sections of gear teeth and limiting tooth surface stress are to be according to ISO standards or as deemed appropriate by the Society. (2) Strength of the interior of gear teeth The Vickers hardness ( <i>HV</i> ) of the interior of gear teeth is not to be less than the value calculated by the following formula. However, this requirement does not apply to bevel gears for which the tip diameter (outer end) is smaller than 1,100 mm: If $\frac{z}{w} < 0.79$ then $\frac{z}{w}$ is to be taken as 0.79. $HV = 1.11S_H p \left[ \frac{z}{w} - \frac{\left(\frac{z}{w}\right)^2}{\sqrt{1 + \left(\frac{z}{w}\right)^2}} \right]$		Note
$\begin{bmatrix} n & \sqrt{1} + \left(\frac{2}{w}\right) \end{bmatrix}$ <i>HV</i> : Vickers hardness <i>S<sub>H</sub></i> : Safety factor for contact stress, is to comply with the requirements in <b>1.6.3-9 of the Annex</b> <b>D55.3.1 Part D of the Rules</b> "CALCULATION OF STRENGTH OF ENCLOSED GEARS" <b>1.6.3-9, Part D of the Rules</b> . <i>p</i> : Real hertzian stress ( <i>MPa</i> ). The upper limit of the value of <i>p</i> used in this calculation is to be 1,500 <i>MPa</i> . <i>p</i> = <i>AS<sub>c</sub></i> <i>S<sub>c</sub></i> : Contact stress ( <i>MPa</i> ), to be calculated according to <i>ISO 10300</i> standards.	HV : Vickers hardness $S_{H} : Safety factor for contact stress, is to comply with the requirements in Annex D5.3.1 "CALCULATION OF STRENGTH OF ENCLOSED GEARS" 1.6.3-9, Part D of the Rules.$	Wording correction

A: If  $S_c$  is calculated according to ISO 10300 A: If  $S_c$  is calculated according to ISO 10300 standards, then the coefficients are to be determined, standards, then the coefficients are to be determined, in consideration of analysis results, by the Society on in consideration of analysis results, by the Society on a case by case basis. In addition, if  $S_c$  is calculated a case by case basis. In addition, if  $S_c$  is calculated according to ISO 10300 standards, A is to taken as according to ISO 10300 standards, A is to taken as 1.32 1.32 w: Half the hertzian contact width (mm), to be w: Half the hertzian contact width (*mm*), to be calculated by the following formula: calculated by the following formula:  $w = \frac{p\rho_C}{56300}$  $w = \frac{p\rho_c}{56300}$  $\rho_C = \frac{\rho_1 \rho_2}{\rho_1 + \rho_2}$  $\rho_C = \frac{\rho_1 \rho_2}{\rho_1 + \rho_2}$  $\rho_1 = 0.5 d_{m1} \sin \alpha_n$  $\rho_1 = 0.5 d_{m_1} \sin \alpha_n$  $\rho_2 = 0.5 d_{m_2} \sin \alpha_n$  $\rho_2 = 0.5 d_{m_2} \sin \alpha_n$  $d_{vn1} = d_{m1} \frac{\sqrt{1+u^2}}{u} \frac{1}{\cos^2 \beta_{mb}}$  $d_{vn1} = d_{m1} \frac{\sqrt{1+u^2}}{u} \frac{1}{\cos^2 \beta_{mn}}$  $d_{m1}$ : Mean pitch diameter of pinion (*mm*)  $d_{m1}$ : Mean pitch diameter of pinion (*mm*) *u* : Gear ratio *u* : Gear ratio  $\beta_{vb} = \arcsin(\sin\beta_m \cos\alpha_n)$  $\beta_{vb} = \arcsin(\sin\beta_m \cos\alpha_n)$  $\beta_m$ : Mean spiral angle  $\beta_m$ : Mean spiral angle  $\alpha_n$ : Normal pressure angle  $\alpha_n$ : Normal pressure angle  $d_{\nu n2} = u^2 d_{\nu n1}$  $d_{vn2} = u^2 d_{vn1}$ z: Depth from teeth surface to evaluation point (*mm*) z: Depth from teeth surface to evaluation point (*mm*)

## Guidance for the survey and construction of steel ships Part D D6 D6.2.4-2

Correction	Present	Note
2 The value of k <sub>3</sub> for propeller shafts and stern tube shafts made of stainless steel forgings, etc. other than those indicated in the <b>Table D6.4</b> , <b>Part D of the Rules</b> which is for k <sub>3</sub> specified in <b>6.2.4-2</b> , <b>Part D of the Rules</b> , is to be in accordance with <b>Table D6.2.4-2</b> . Furthermore, this requirement may be applied to propeller shafts Kind 2 and stern tube shafts Kind 2.	2 The value of $k_3$ for propeller shafts and stern tube shafts made of stainless steel forgings, etc. other than those indicated in the <b>Table D6.4</b> which is for $k_3$ specified in 6.2.4- 2, <b>Part D of the Rules</b> , is to be in accordance with <b>Table</b> <b>D6.2.4-2</b> . Furthermore, this requirement may be applied to	Wording correction

### Guidance for the survey and construction of steel ships Part D D6 D6.2.7-2

Correction	Present	Note
2 The wording "corrosion resistant materials approved	2 The wording "corrosion resistant materials approved	
by the Society" in 6.2.7-1(3)), Part D of the Rules means	by the Society" in 6.2.7-1(3) means those materials which	W
those materials which have been subjected to approval tests	have been subjected to approval tests specified in 2.4.2-5, Part	Wording correction
specified in 2.4.2-5, Part 6 of the "Guidance for the	6 of the "Guidance for the Approval and Type Approval of	
Approval and Type Approval of Materials and Equipment	Materials and Equipment for Marine Use" and then which	
for Marine Use <sup>22</sup> and then which obtain type approval of use	obtain type approval of use of machinery and equipment as a	
of machinery and equipment as a corrosion resistant material	corrosion resistant material for propeller shafts or stern tube	
for propeller shafts or stern tube shafts. In addition,	shafts. In addition, KSUSF316, KSUSF316L, KSUS316-SU or	
KSUSF316, KSUSF316L, KSUS316-SU or KSUS316L-SU	KSUS316L-SU used for the propeller shafts exceeding 200	
used for the propeller shafts exceeding 200 mm in diameter are	mm in diameter are also to be in accordance with this	
also to be in accordance with this requirement to obtain type	requirement to obtain type approval of use of machinery and	
approval of use of machinery and equipment as a corrosion	equipment as a corrosion resistant material for propeller shafts	
resistant material for propeller shafts or stern tube shafts.	or stern tube shafts.	

## Guidance for the survey and construction of steel ships Part D D6 D6.2.10-1

Correction	Present	Note
1 The wording "provisions specified elsewhere" in		
6.2.10-1(1)(a)i), Part D of the Rules means the following (1)	6.2.10-1(1)(a)i), Part D of the Rules means the following (1)	
and (2) in principle:	and (2) in principle:	
(1) Shaft alignment calculations are to be carried out in	(1) Shaft alignment calculations are to be carried out in	
accordance with the requirements in Annex 6.2.13,	accordance with the requirements in Annex 6.2.13	Wording correction
Part D of the Rules "CALCULATION OF SHAFT	"CALCULATION OF SHAFT ALIGNMENT",	5
ALIGNMENT" <del>, Part D of the Rules</del> .	Part D of the Rules.	
(2) For improving the lubricating condition of the	(2) For improving the lubricating condition of the	
bearing, the following measures are to be taken:	bearing, the following measures are to be taken:	
(a) A lubricating oil inlet is to be provided at the aft	(a) A lubricating oil inlet is to be provided at the aft	
end of the bearing to ensure the forced circulation	end of the bearing to ensure the forced circulation	
of the lubricating oil.	of the lubricating oil.	
(b) Either of the following devices to measure stern	(b) Either of the following devices to measure stern	
tube bearing metal temperature at the aft end	tube bearing metal temperature at the aft end	
bottom along with high temperature alarms (with	bottom along with high temperature alarms (with	
a preset value of 60 °C or below) is to be	a preset value of 60 °C or below) is to be	
provided:	provided:	
i) Two or more temperature sensors embedded	i) Two or more temperature sensors embedded	
in the metal; or	in the metal; or	
ii) An embedded temperature sensor,	ii) An embedded temperature sensor,	
replaceable from inboard the ship, and a	replaceable from inboard the ship, and a	
spare temperature sensor.	spare temperature sensor.	
In this case, the replacement of such sensors	In this case, the replacement of such sensors	
according to procedures submitted	according to procedures submitted	
beforehand is to be demonstrated.	beforehand is to be demonstrated.	
(c) Low level alarms are to be provided for	(c) Low level alarms are to be provided for	
lubricating oil sump tanks.	lubricating oil sump tanks.	

### Guidance for the survey and construction of steel ships Part D D6 D6.2.10-2

Correction	Present	Note
2 The wording "provisions specified elsewhere" in	2 The wording "provisions specified elsewhere" in	
6.2.10-1(1)(b)ii), Part D of the Rules means the following (1)	6.2.10-1(1)(b)ii), Part D of the Rules means the following (1)	
and (2) in principle:	and (2) in principle:	
(1) Nominal bearing pressure, etc. calculated in	(1) Nominal bearing pressure, etc. calculated in	
accordance with Annex 6.2.13, Part D of the Rules	accordance with Annex 6.2.13 "CALCULATION	Wording correction
"CALCULATION OF SHAFT ALIGNMENT",	OF SHAFT ALIGNMENT", Part D of the Rules	
Part D of the Rules are to be within the allowable	are to be within the allowable limits specified in the	
limits specified in the Type Approval Certificate.	Type Approval Certificate.	
(2) The measures for lubricating condition specified in -	(2) The measures for lubricating condition specified in -	
1(2) are to be taken.	1(2) are to be taken.	

### Guidance for the survey and construction of steel ships Part D D8 D8.3.1

Correction	Present	Note
In cases where torsional vibration torque amplitude	In cases where torsional vibration torque amplitude	
exceeds the allowable limit $T_1$ specified in 8.2.4(1)), Part D	exceeds the allowable limit $T_1$ specified in 8.2.4(1) above, the	117 1
of the Rules above, the barred speed range for avoiding	barred speed range for avoiding continuous operation	Wording correction
continuous operation specified in 8.3.1, Part D of the Rules	specified in 8.3.1, Part D of the Rules is to be calculated by	
is to be calculated by replacing $\tau_1$ with $T_1$ .	replacing $\tau_1$ with $T_1$ .	

## Guidance for the survey and construction of steel ships Part D D11 Table D11.2.2-1

Correction			Present			Note	
(Approval Te	Kinds of Tests, Areas Subjected to Tes and Number of Specimens sts for Welding Procedures and Related	and Number of Spe (Approval Tests for Welding Pro			umber of Specimens Welding Procedures and Related		
Specifications Ap	pplicable to Welding Work for Windlass	es)	Specificat	ons Applicat	ole to Welding Work for Windlasse	es)	
Kind of tes	t Areas subjected to tests or number of specimens		K	ind of test	Areas subjected to tests or number of specimens		
Visual inspect	tion Whole length of welding joints		Visu	al inspection	Whole length of welding joints		
Non-destruct inspection	Whole length of welding joints <sup>(1)</sup>			-destructive	Whole length of welding joints <sup>(1)</sup>		
Tensile tes	t 2		Т	ensile test	2		
Bend test	4 <sup>(2)</sup>		I	Bend test	4 <sup>(2)</sup>		
Impact test (s	ets) $3-8^{(3)(4)}$		Impa	ict test (sets)	3-8 <sup>(3)(4)</sup>		
Macro-Struct inspection	1			ro-Structure spection	1		
Hardness te	st 1 <sup>(5)</sup>		Ha	rdness test	1 <sup>(5)</sup>		
examin examin (2) Two sy respec for by thickne (3) Impac have n	al inspections by radiographic examination or ultras- nation, and surface inspections by magnetic par- nation or liquid penetrant examination are to be carried pecimens are to be taken from the root bend and face tively. However, the root and face bends may be substi- four side bends for plates and pipes (or tubes) w ess of 12 mm or more regardless of <b>Table D11.2.2-1</b> . t tests may be omitted when welding base metals w o requirements related to testing temperature during in nd minimum mean absorbed energy.	ticle out. bend uted ith a hich	No (1) (2) (3)	Internal inspect examination, examination of Two specimen respectively. H for by four si thickness of 12 Impact tests n have no require	ctions by radiographic examination or ultras and surface inspections by magnetic par r liquid penetrant examination are to be carried as are to be taken from the root bend and face be lowever, the root and face bends may be substit de bends for plates and pipes (or tubes) wi 2 mm or more regardless of Table D11.2.2-1. hay be omitted when welding base metals we ements related to testing temperature during im num mean absorbed energy.	rticle l out. bend tuted ith a vhich	
(4) Fig-4_ corresp specim (5) Hardnu steels of	M4.2 and Fig. M4.3, Part M of the Rules are to be ap pondingly to the position of the notch of the impact	test	(4) (5)	Fig 4.2 and F corresponding specimen. Hardness tests steels or mater	ig. M4.3, Part M of the Rules are to be app ly to the position of the notch of the impact may be omitted when welding austenitic stair ials for which requirements related to yield poin less than $355 N/mm^2$ .	t test nless	Wording correction

### Guidance for the survey and construction of steel ships Part D D11 D11.4.6-1

Correction	Present	Note
1 The wording "important welds other than those	1 The wording "important welds other than those	
specified in 11.4.5 of the Rules" referred to in 11.4.6, Part D	specified in 11.4.5" referred to in 11.4.6, Part D of the Rules	<b>W</b> 7 1
of the Rules means, for example, the following parts with a	means, for example, the following parts with a plate thickness	Wording correction
plate thickness of 6 mm or more:	of 6 <i>mm</i> or more:	
(1) Welds between flat end plates or cover plates and	(1) Welds between flat end plates or cover plates and	
shell plates	shell plates	
(2) Welds between furnaces or ogee rings and shell plates	(2) Welds between furnaces or ogee rings and shell plates	
(3) Welds for manholes	(3) Welds for manholes	
(4) Welds for nozzles	(4) Welds for nozzles	

### Guidance for the survey and construction of steel ships Part D D12 D12.1.6-1

	Correction		Present	Note
1	The wording "requirements specified otherwise" in	1	The wording "requirements specified otherwise" in	
12. <del>16</del> 1	.6, Part D of the Rules means as follows.	12.16,	Part D of the Rules means as follows.	Defense as some stice
(1)	In cases where rubber hoses, Teflon hoses or nylon	(1)	In cases where rubber hoses, Teflon hoses or nylon	Reference correction
	hoses are used for the following pipes, materials		hoses are used for the following pipes, materials	
	approved in accordance with Guidance for the		approved in accordance with Guidance for the	
	Approval and Type Approval of Materials and		Approval and Type Approval of Materials and	
	Equipment for Marine Use are to be used.		Equipment for Marine Use are to be used.	
	(a) Pipes of Group I or Group II		(a) Pipes of Group I or Group II	
	(b) Pipes likely to cause fire or flooding in cases		(b) Pipes likely to cause fire or flooding in cases	
	where they rupture		where they rupture	
(2)	Only plastic pipes (including vinyl pipes) approved	(2)	Only plastic pipes (including vinyl pipes) approved	
	by the Society in accordance with Chapter 6, Part 6		by the Society in accordance with Chapter 6, Part 6	
	of the Guidance for the Approval and Type		of the Guidance for the Approval and Type	
	Approval of Materials and Equipment for Marine		Approval of Materials and Equipment for Marine	
	Use are to be used.		Use are to be used.	
(3)	In cases where aluminum alloy pipes are used; the	(3)	In cases where aluminum alloy pipes are used; the	
	following requirements are to be complied with:		following requirements are to be complied with:	
	(a) As a rule, aluminum alloy pipes are to be in		(a) As a rule, aluminum alloy pipes are to be in	
	accordance with the requirements of the code		accordance with the requirements of the code	
	deemed appropriate by the Society, and are to be		deemed appropriate by the Society, and are to be	

of seamless drawn pipes or seamless extruded pipes.

- (b) Aluminum alloy pipes are not to be used for any of the following applications:
  - i) As a rule, pipes with a design temperature exceeding 150 °C.
  - ii) Any pipes which penetrates either an "A-Class division" or a "B-Class division."
  - iii) Piping in which the use of copper alloy pipes is prohibited by Table D12.2, Part D of the Rules.
- (c) The required thickness of aluminum alloy pipes subject to internal pressure are to be in accordance with the following requirements: Pipe thickness is to be determined using the formula in **12.2.1-1**, **Part D of the Rules**. In this case, allowable stress (f) is to be the smallest of the following values. However, in cases where the design temperature is not in the creep region of the material, no consideration needs to be given to the value of  $f_3$ .

 $\tilde{f}_1 = \frac{R_{20}}{4.0}, \quad f_2 = \frac{E_t}{1.5}, \quad \tilde{f}_3 = \frac{S_R}{1.6}$ where

 $R_{20}$ : Specified minimum tensile strength  $(N/mm^2)$  of the material at room temperature (less than 50 °C)

 $E_t$  : 0.2 % proof stress (*N/mm*<sup>2</sup>) of the material at design temperature

 $S_R$ : Mean value of creep breaking stress  $(N/mm^2)$  of the material after 100,000 *hours* at design temperature

of seamless drawn pipes or seamless extruded pipes.

- (b) Aluminum alloy pipes are not to be used for any of the following applications:
  - i) As a rule, pipes with a design temperature exceeding 150 °C.
  - ii) Any pipes which penetrates either an "A-Class division" or a "B-Class division."
  - iii) Piping in which the use of copper alloy pipes is prohibited by Table D12.2, Part D of the Rules.
- (c) The required thickness of aluminum alloy pipes subject to internal pressure are to be in accordance with the following requirements: Pipe thickness is to be determined using the formula in **12.2.1-1**, **Part D of the Rules**. In this case, allowable stress (f) is to be the smallest of the following values. However, in cases where the design temperature is not in the creep region of the material, no consideration needs to be given to the value of  $f_3$ .

$$f_1 = \frac{R_{20}}{4.0}, \quad f_2 = \frac{E_t}{1.5}, \quad f_3 = \frac{S_R}{1.6}$$
  
where

 $R_{20}$ : Specified minimum tensile strength (*N/mm*<sup>2</sup>) of the material at room temperature (less than 50 °C)

 $E_t$  : 0.2 % proof stress (*N/mm*<sup>2</sup>) of the material at design temperature

 $S_R$ : Mean value of creep breaking stress (*N/mm<sup>2</sup>*) of the material after 100,000 *hours* at design temperature

#### Guidance for the survey and construction of steel ships Part D D12 D12.2.2-1

Correction	Present	Note
1 In cases where the requirement for minimum	1 In cases where the requirement for minimum	
thickness of the corrosion resistant alloy steel pipes in 12.2.2-	thickness of the corrosion resistant alloy steel pipes in 12.2.2-	
1, Part D of the Rules is applied, the minimum thickness of	1, Part D of the Rules is applied, the minimum thickness of	
any stainless steel pipes used for cargo oil pipes is to be the	any stainless steel pipes used for cargo oil pipes is to be the	
value specified in S5.1.6-1, Part S- <u>of the Guidance</u> .	value specified in <b>S5.1.6-1</b> , <b>Part S</b> .	Wording correction

#### Guidance for the survey and construction of steel ships Part D D12 D12.6.1-2

Correction	Present	Note
2 The Society may waive the presence of the Surveyor	2 The Society may waive the presence of the Surveyor	
at the hydrostatic tests required by in $12.6.1$ -2 and $-3 \cdot 0f \cdot 12.6.1$ ,	at the hydrostatic tests required by in -2 and -3 of 12.6.1, Part	<b>TT</b> 7 1
<b>Part D of the Rules</b> for small bore pipes (less than about 15	<b>D</b> of the Rules for small bore pipes (less than about 15 mm),	Wording correction
<i>mm</i> ), depending on the application.	depending on the application.	

#### Guidance for the survey and construction of steel ships Part D D12 D12.6.1-3

Correction	Present	Note
3 The term "integral" referred to in <u>12.6.1</u> -2 and -3-of <u>12.6.1</u> , <b>Part D of the Rules</b> means, for example, welded fittings.	e e	Wording correction

## Guidance for the survey and construction of steel ships Part D D13 D13.8.5-3

Correction	Present	Note
<b>3</b> The wording "the systems to have constructions and functions deemed appropriate by the Society" in <b>13.8.5-1(4), Part D of the Rules</b> means those systems complying with the following requirements and being of a type approved by the Society in accordance with Chapter 5, <b>Part 7 of <u>Guidance for the Approval and Type Approval</u> of Materials and Equipment for Marine Use or those systems approved by an organisation deemed appropriate by the Society in accordance with the Resolution <i>MSC</i>.188(79), as amended. (1) The systems are to have sufficient corrosion</b>	<b>3</b> The wording "the systems to have constructions and functions deemed appropriate by the Society" in <b>13.8.5-1(4), Part D of the Rules</b> means those systems complying with the following requirements and being of a type approved by the Society in accordance with <b>Chapter 5</b> , <b>Part 7 of the Approval and Type Approval of Materials</b> <b>and Equipment for Marine Use</b> or those systems approved by an organisation deemed appropriate by the Society in accordance with the Resolution <i>MSC</i> .188(79), as amended. (1) The systems are to have sufficient corrosion	Wording correction
<ul> <li>(1) The systems are to have sufficient contoston resistance with consideration being given to the locations where the systems are to be installed and are to be maintain their functionality under expected service temperatures. In addition, any parts of the systems which may be exposed to cargo or bilge containing cargo, such as detectors, etc., are to be sufficiently able to cope with different conditions such as acidity, alkalinity, dust, etc. with consideration being given to the intended cargoes.</li> <li>(2) Protection of the enclosures of electrical components for the systems is to satisfy the following (a) to (c):</li> <li>(a) The requirements of IP68 for those installed in spaces, tanks or cargo holds. This includes all adjacent spaces considered to be simultaneously flooded under damage stability calculations of the spaces/tanks/cargo holds required by the provisions of 2.3, Part 1, Part C of the Rules or the requirements for ships to be assigned reduced freeboard in accordance with Part V of the Rules;</li> <li>(b) The requirements of IP56 for those installed on</li> </ul>	<ul> <li>(1) The systems are to have sufficient contoston resistance with consideration being given to the locations where the systems are to be installed and are to be maintain their functionality under expected service temperatures. In addition, any parts of the systems which may be exposed to cargo or bilge containing cargo, such as detectors, etc., are to be sufficiently able to cope with different conditions such as acidity, alkalinity, dust, etc. with consideration being given to the intended cargoes.</li> <li>(2) Protection of the enclosures of electrical components for the systems is to satisfy the following (a) to (c): <ul> <li>(a) The requirements of IP68 for those installed in spaces, tanks or cargo holds. This includes all adjacent spaces considered to be simultaneously flooded under damage stability calculations of the spaces/tanks/cargo holds required by the provisions of 2.3, Part 1, Part C of the Rules or the requirements for ships to be assigned reduced freeboard in accordance with Part V of the Rules;</li> <li>(b) The requirements of IP56 for those installed on</li> </ul></li></ul>	

exposed decks above the spaces/tanks/cargo exposed decks above the spaces/tanks/cargo holds; and holds; and (c) The provisions of **Part H of the Rules** for any of (c) The provisions of Part H of the Rules for any of those not specified in (a) or (b) above. those not specified in (a) or (b) above. Electrical installations for the systems installed in the Electrical installations for the systems installed in the (3) (3) following areas are to be of an intrinsically safe type following areas are to be of an intrinsically safe type or safe type of an appropriate apparatus group and or safe type of an appropriate apparatus group and temperature class suitable for the cargo carried, and temperature class suitable for the cargo carried, and the maximum surface temperature of the installations the maximum surface temperature of the installations is not to exceed 85°C, except electrical installations is not to exceed 85°C, except electrical installations installed in ships designed only to carry cargo which installed in ships designed only to carry cargo which are not combustible or explosive atmosphere. In are not combustible or explosive atmosphere. In addition, in cases where a ship is designed to carry addition, in cases where a ship is designed to carry only limited kinds of cargo, the maximum surface only limited kinds of cargo, the maximum surface temperature may be appropriately relaxed depending temperature may be appropriately relaxed depending on the kind of cargo. In this case, such limitations on the kind of cargo. In this case, such limitations relating to cargo are to be documented in booklets for relating to cargo are to be documented in booklets for cargo operations. Finally, those electric installations cargo operations. Finally, those electric installations installed at the edges of the following areas are to be installed at the edges of the following areas are to be approved at the discretion of the Society with due approved at the discretion of the Society with due consideration being given to their design with respect consideration being given to their design with respect to gas-tightness, etc. to gas-tightness, etc. (a) Cargo holds (a) Cargo holds (b) Enclosed spaces adjacent to cargo holds having (b) Enclosed spaces adjacent to cargo holds having openings without a gas-tight or watertight openings without a gas-tight or watertight door/hatch and the like into a hold door/hatch and the like into a hold (c) Areas within 3 m of any cargo hold mechanical (c) Areas within 3 m of any cargo hold mechanical exhaust ventilation outlet exhaust ventilation outlet For electrical installations for the systems which are For electrical installations for the systems which are (4) (4) installed in ships intended for carrying dangerous installed in ships intended for carrying dangerous goods, the provisions of Chapter 19, Part R of the goods, the provisions of Chapter 19, Part R of the Rules are to be referred to. Rules are to be referred to. Detectors are to be capable of indicating water level Detectors are to be capable of indicating water level (5) (5)within an accuracy of  $\pm 100 \text{ mm}$ . Time delays are to be within an accuracy of  $\pm 100 \text{ mm}$ . Time delays are to be

- so incorporated into alarm systems, in order to prevent spurious alarms due to any sloshing effects associated with ship motion, so that alarms will activate after detecting water level continuously for a standard period of not less than 10 *seconds*. The accuracy of these detectors may be set on the basis of seawater density.
- (6) The systems are to be of a continuously selfmonitoring type that also monitors any detectors. Audible and visual alarms are to be activated when any faults are detected. In this requirement, the term "fault" refers to problems such as open circuits, short circuits, loss of power supplies and CPU failures. The audible alarms are to be capable of being muted. However, visual alarms are to remain active until the malfunction has been cleared and such alarms are not to be capable of being turned off by hand. In addition, the systems are to be provided with means for testing their respective detectors when holds are empty.
- (7) Alarm panels for the systems are to be provided with a switch for the testing of all audible and visual alarms. This switch is to return to the off position automatically when not being operated.
- (8) The systems are to be supplied with electrical power from two independent sources. Any failure of two electrical power supplies is to be indicated by an alarm on the navigation bridge. In cases where secondary electrical power is supplied by dedicated batteries, such batteries are to be in accordance with the following (a) to (c):
  - (a) Batteries are to have a capacity for a period of at least 18 *hours* and they are to be continuously charged;
  - (b) Batteries are to be arranged and located in

so incorporated into alarm systems, in order to prevent spurious alarms due to any sloshing effects associated with ship motion, so that alarms will activate after detecting water level continuously for a standard period of not less than 10 *seconds*. The accuracy of these detectors may be set on the basis of seawater density.

- (6) The systems are to be of a continuously selfmonitoring type that also monitors any detectors. Audible and visual alarms are to be activated when any faults are detected. In this requirement, the term "fault" refers to problems such as open circuits, short circuits, loss of power supplies and CPU failures. The audible alarms are to be capable of being muted. However, visual alarms are to remain active until the malfunction has been cleared and such alarms are not to be capable of being turned off by hand. In addition, the systems are to be provided with means for testing their respective detectors when holds are empty.
- (7) Alarm panels for the systems are to be provided with a switch for the testing of all audible and visual alarms. This switch is to return to the off position automatically when not being operated.
- (8) The systems are to be supplied with electrical power from two independent sources. Any failure of two electrical power supplies is to be indicated by an alarm on the navigation bridge. In cases where secondary electrical power is supplied by dedicated batteries, such batteries are to be in accordance with the following (a) to (c):
  - (a) Batteries are to have a capacity for a period of at least 18 *hours* and they are to be continuously charged;
  - (b) Batteries are to be arranged and located in

accordance with 3.3.5, Part H of the Rules, and	accordance with 3.3.5, Part H of the Rules, and	
may be integrated into the system; and	may be integrated into the system; and	
(c) Any failures of the battery systems, including	(c) Any failures of the battery systems, including	
battery charging systems specified in above (a),	battery charging systems specified in above (a),	
are to be indicated by an alarm on the navigation	are to be indicated by an alarm on the navigation	
bridge.	bridge.	

# Guidance for the survey and construction of steel ships Part D D13 D13.8.5-7

	Correction		Present	Note
7	Manuals specified in 13.8.5-4, Part D of the Rules are	7	Manuals specified in 13.8.5-4, Part D of the Rules are	
to co	ntain the following information and operational	to co	ntain the following information and operational	
instruc	tions:	instruc	ctions:	
(1)	Descriptions of the equipment in the system together	(1)	Descriptions of the equipment in the system together	
	with listings of procedures for checking that, as far as		with listings of procedures for checking that, as far as	
	practicable, each item of equipment is working		practicable, each item of equipment is working	
	properly during any stage of ship operation.		properly during any stage of ship operation.	
(2)	Evidence that the system has been approved in	(2)	Evidence that the system has been approved in	
	accordance with Chapter 5, Part 7 of Guidance for		accordance with Chapter 5, Part 7 of the Approval	Wording correction
	the Approval and Type Approval of Materials and		and Type Approval of Materials and Equipment	
	Equipment for Marine Use or the Resolution		for Marine Use or the Resolution MSC.188(79), as	
	<i>MSC</i> . 188(79), as amended.		amended.	
(3)	Line diagrams of the system showing equipment	(3)	Line diagrams of the system showing equipment	
	positions		positions	
(4)	Instructions for operator training, setting, securing,	(4)	Instructions for operator training, setting, securing,	
	protecting and testing.		protecting and testing.	
(5)	Information regarding the types of cargo that	(5)	Information regarding the types of cargo that	
	guarantees performance. (In cases where electrical		guarantees performance. (In cases where electrical	
	installations are required to be of an intrinsically safe,		installations are required to be of an intrinsically safe,	
(6)	certificates verifying this are to be included.)	(6)	certificates verifying this are to be included.)	
(6)	Temperature range for which the equipment is suitable.	(6)	Temperature range for which the equipment is suitable.	
(7)	Procedures to be followed in the event equipment in	(7)	Procedures to be followed in the event equipment in	
(7)	the system is not functioning properly.	(7)	the system is not functioning properly.	
(8)	Maintenance requirements for the system.	(8)	Maintenance requirements for the system.	
(0)	manitemente requirements for the system.	(0)	Maintenance requirements for the system.	

## Guidance for the survey and construction of steel ships Part D D14 D14.2.7-2

Correction Present		Note
2 Pipes for measuring instruments and remote control	2 Pipes for measuring instruments and remote control	
equipment	equipment	
Steel pipes for measuring instruments and remote control		
equipment provided in cargo oil tanks are to have minimum	equipment provided in cargo oil tanks are to have minimum	
thickness of Schedule 80 specified in Table K4.16, ParkPart	thickness of Schedule 80 specified in Table K4.16, Park K	Wording correction
K of the Rules, except in cases where such pipes have	of the Rules, except in cases where such pipes have openings	
openings inside cargo oil tanks.	inside cargo oil tanks.	

#### Guidance for the survey and construction of steel ships Part D D14 D14.2.8-3

Correction	Present	Note
3 In cases where level indicating devices are provided	3 In cases where level indicating devices are provided	
for those sounding devices specified in 14.2.8, Part D of the	for those sounding devices specified in 14.2.8, Part D of the	
Rules, such devices are to be of a type approved by the	Rules, such devices are to be of a type approved by the	
Society in accordance with Chapter 4, Part 7 of "the	Society in accordance with Chapter 4, Part 7 of "Guidance	Wording correction
Guidance for the Approval and Type Approval of	for the Approval and Type Approval of Materials and	
Materials and Equipment for Marine Use <sup>22</sup> , which is	Equipment for Marine Use", which is separately specified.	
separately specified. And, all approved devices are to be made	And, all approved devices are to be made public on the "List	
public on the "List of approved materials and equipment".	of approved materials and equipment".	

### Guidance for the survey and construction of steel ships Part D D16 D16.2.4-1

Correction	Present	Note
1 The continuous duty pull specified in 16.2.4-2(2)(a) of	1 The continuous duty pull specified in 16.2.4-2(2)(a) is	
the Rules is based on the following conditions:	based on the following conditions:	<b>XX</b> 7 1
(1) Ordinary stockless anchors are used.	(1) Ordinary stockless anchors are used.	Wording correction
(2) The anchor masses are assumed to be the masses as	(2) The anchor masses are assumed to be the masses as	
given in 14.3, Part 1, Part C of the Rules and	given in 14.3, Part 1, Part C of the Rules and	
Chapter 2, Part L of the Rules.	Chapter 2, Part L of the Rules.	
(3) One anchor is hoisted at a time.	(3) One anchor is hoisted at a time.	
(4) The effects of buoyancy and hawse pipe efficiency	(4) The effects of buoyancy and hawse pipe efficiency	
(assumed to be 70 %) have been accounted for.	(assumed to be 70 %) have been accounted for.	

## Guidance for the survey and construction of steel ships Part D D17 D17.1.1-4

Correction	Present	Note
4 Ammonia refrigerating machinery drawings and data	4 Ammonia refrigerating machinery drawings and data	
Drawings and data to be submitted, in addition to those	Drawings and data to be submitted, in addition to those	<b>W</b> 7 1
specified in 17.1.2 of the Rules, are generally as follows:	specified in 17.1.2, are generally as follows:	Wording correction
(a) <i>R</i> 717 Refrigerant Piping Diagrams	(a) R717 Refrigerant Piping Diagrams	
(b) Gas Detector Arrangements	(b) Gas Detector Arrangements	
(c) General Arrangement of Refrigerating	(c) General Arrangement of Refrigerating	
Machinery Compartments	Machinery Compartments	

## Guidance for the survey and construction of steel ships Part D D17 D17.1.1-10

Correction	Present	Note
<b>10</b> Gas expulsion system	10 Gas expulsion system	
Gas expulsion systems consisting of ventilation systems,	Gas expulsion systems consisting of ventilation systems,	
gas absorption systems, water screening systems and gas	gas absorption systems, water screening systems and gas	
absorption water tanks are to be installed in refrigerating	absorption water tanks are to be installed in refrigerating	
machinery compartments, in accordance with (1) to (5) below	machinery compartments, in accordance with (1) to (5) below	
so that any accidentally leaked gas can be quickly expelled	so that any accidentally leaked gas can be quickly expelled	
from the such compartments.	from the such compartments.	
(1) Mechanical ventilation systems which comply with	(1) Mechanical ventilation systems which comply with	
the following requirements are, as a rule, to be	the following requirements are, as a rule, to be	
installed in refrigerating machinery compartments so	installed in refrigerating machinery compartments so	
that these spaces can be ventilated all times.	that these spaces can be ventilated all times.	
(a) Such ventilation systems are to have enough	(a) Such ventilation systems are to have enough	
capacity to ensure at least 30 air changes per hour	capacity to ensure at least 30 air changes per hour	
in refrigerating machinery compartments.	in refrigerating machinery compartments.	
(b) Such ventilation systems are to be independent of		
other ventilation systems on board ship, and are	other ventilation systems on board ship, and are	
to be capable of being operated from outside	to be capable of being operated from outside	
refrigerating machinery compartments.	refrigerating machinery compartments.	
(c) Exhaust outlets are to be installed at horizontal distances of more than 10 <i>m</i> from the nearest air	(c) Exhaust outlets are to be installed at horizontal distances of more than 10 <i>m</i> from the nearest air	
intake openings, openings of accommodation	intake openings, openings of accommodation	
spaces, service spaces and control stations, and at	spaces, service spaces and control stations, and at	

vertical distances of more than 4 m from weather decks.

- (d) Air intake openings are to be provided at low positions and exhaust openings are to be provided at high positions in refrigerating machinery compartments so that no gas accumulates inside compartments and exhaust ducts.
- (e) Exhaust fans are to be of a construction that does not allow any sparks to be generated complying with R4.5.4-1(2)... Part R of the Guidance. Protection screens of not more than 13mm square mesh are to be fitted in the inlet and outlet ventilation openings of the ducts fitted with such fans on the open deck. For the purpose of this requirement, as a rule, motors for driving the fans are to be of the exterior mounted type.
- (2) Independent ventilation systems are to be installed in passageways leading to refrigerating machinery compartments. However, if ventilation systems, such as the ones specified in (1) above, are provided with ducts so that they can be used for expelling air from passageways, then independent ventilation systems need not be installed.
- (3) Gas absorption systems satisfying any of the requirements given below, capable of excluding leaked gases quickly from the refrigerating machinery compartments, and capable of being operated from outside such compartments, are to be installed.

(a) Scrubbers

Scrubbers are to be designed with processing capacities adequate enough to restrict gas concentration at exhaust fans to well below 25 *ppm* as well as absorb ammonia in the largest receivers within 30 *minutes*; and,

vertical distances of more than 4 m from weather decks.

- (d) Air intake openings are to be provided at low positions and exhaust openings are to be provided at high positions in refrigerating machinery compartments so that no gas accumulates inside compartments and exhaust ducts.
- (e) Exhaust fans are to be of a construction that does not allow any sparks to be generated complying with R4.5.4-1(2). Protection screens of not more than 13mm square mesh are to be fitted in the inlet and outlet ventilation openings of the ducts fitted with such fans on the open deck. For the purpose of this requirement, as a rule, motors for driving the fans are to be of the exterior mounted type.
- (2) Independent ventilation systems are to be installed in passageways leading to refrigerating machinery compartments. However, if ventilation systems, such as the ones specified in (1) above, are provided with ducts so that they can be used for expelling air from passageways, then independent ventilation systems need not be installed.
- (3) Gas absorption systems satisfying any of the requirements given below, capable of excluding leaked gases quickly from the refrigerating machinery compartments, and capable of being operated from outside such compartments, are to be installed.

#### (a) Scrubbers

Scrubbers are to be designed with processing capacities adequate enough to restrict gas concentration at exhaust fans to well below 25 *ppm* as well as absorb ammonia in the largest receivers within 30 *minutes*; and,

	<ul> <li>Pumps for scrubbers are to start automatically when gas concentrations in refrigerating machinery compartments exceed 300 <i>ppm</i>.</li> <li>(b) Water sprinkler systems The quantity of sprinkler water is to be such that</li> </ul>		<ul> <li>Pumps for scrubbers are to start automatically when gas concentrations in refrigerating machinery compartments exceed 300 ppm.</li> <li>(b) Water sprinkler systems The quantity of sprinkler water is to be such that</li></ul>	
	any leaked gases can be satisfactorily absorbed; and,		any leaked gases can be satisfactorily absorbed; and,	
	Nozzles are to be of types approved by the		Nozzles are to be of types approved by the	
	Society. As a rule, nozzles are to be positioned so that their range covers all refrigerating machinery		Society. As a rule, nozzles are to be positioned so that their range covers all refrigerating machinery	
	in such compartments; and,		in such compartments; and,	
	When gas concentrations in refrigerating		When gas concentrations in refrigerating	
	machinery compartments exceed 300 ppm,		machinery compartments exceed 300 ppm,	
	pumps for sprinkler water are to start automatically.		pumps for sprinkler water are to start automatically.	
(4)	All doors of refrigerating machinery compartments	(4)	All doors of refrigerating machinery compartments	
	are to be provided with water screening systems		are to be provided with water screening systems	
	which can be operated from outside such compartments.		which can be operated from outside such compartments.	
(5)	Gas absorption water tanks complying with the	(5)	Gas absorption water tanks complying with the	
(-)	requirements given below, are to be installed so that	(-)	requirements given below, are to be installed so that	
	any leaked liquid ammonia can be quickly recovered.		any leaked liquid ammonia can be quickly recovered.	
	(a) Such tanks are to be of a capacity sufficient enough to fully recover all of the water for		(a) Such tanks are to be of a capacity sufficient	
	absorbing refrigerants found in at least one		enough to fully recover all of the water for absorbing refrigerants found in at least one	
	refrigerating machinery unit.		refrigerating machinery unit.	
	(b) Automatic water supply systems are to be		(b) Automatic water supply systems are to be	
	installed in such tanks so that fully-filled		installed in such tanks so that fully-filled	
	<ul><li>condition of such tanks is always maintained.</li><li>(c) Overflow from such tanks is to be diluted or</li></ul>		<ul><li>condition of such tanks is always maintained.</li><li>(c) Overflow from such tanks is to be diluted or</li></ul>	
	neutralized and then discharged directly		neutralized and then discharged directly	
	overboard, and pipes handling such overflows are		overboard, and pipes handling such overflows are	
	not to pass through accommodation spaces.		not to pass through accommodation spaces.	
	(d) Means are to be provided in such tanks to recover		(d) Means are to be provided in such tanks to recover	

<ul> <li>any ammonia drainage generated in refrigerating machinery compartments. In addition, appropriate drain traps are to be provided to prevent any reverse flow of gas from such tanks.</li> <li>(e) All vent pipes of such tanks are to be connected to exhaust pipes of those ventilation systems</li> </ul>	<ul> <li>any ammonia drainage generated in refrigerating machinery compartments. In addition, appropriate drain traps are to be provided to prevent any reverse flow of gas from such tanks.</li> <li>(e) All vent pipes of such tanks are to be connected to exhaust pipes of those ventilation systems</li> </ul>	
specified in (1) above.	specified in (1) above.	

### Guidance for the survey and construction of steel ships Part D D18 D18.7.1-2

Correction	Present	Note
2 The wording "The procedures for these tests are to be	2 The wording "The procedures for these tests are to be	
deemed appropriate by the Society" specified in 18.7.1(1),	deemed appropriate by the Society" specified in 18.7.1(1),	
Part D of the Rules means those procedures in accordance	Part D of the Rules means those procedures in accordance	
with Chapter 1, Part 7 of <u>"the Guidance for the Approval</u>	with Chapter 1, Part 7 of "Guidance for the Approval and	Wording correction
and Type Approval of Materials and Equipment for	Type Approval of Materials and Equipment for Marine	
Marine Use. <sup>22</sup>	Use."	

## Guidance for the survey and construction of steel ships Part D Annex D2.3.1, 1.2.1

Correction	Present	Note
Stress at fillets due to bending moments is to be obtained by the following formulae:	Stress at fillets due to bending moments is to be obtained by the following formulae:	
$\sigma_x = 1.08\alpha_{KB}\frac{M_W}{Z} \tag{1}$	$\sigma_x = 1.08\alpha_{KB}\frac{M_W}{Z} \tag{1}$	
$\sigma_y = 0.285 \alpha_{KB} \frac{M_W}{Z} \tag{2}$	$\sigma_y = 0.285 \alpha_{KB} \frac{M_W}{Z} \tag{2}$	
where	where	
<ul> <li>σ<sub>x</sub> : Axial stress due to bending moment at fillet</li> <li>σ<sub>y</sub> : Circumferential stress due to bending moment at fillet</li> <li>α<sub>KB</sub>: Stress concentration factor for bending, as shown in <b>D2.3.1-5(1)</b> of the Guidance</li> <li>Z : Section modulus of crankpin or journal</li> <li>M<sub>W</sub>: Bending moment at the centre of the web thickness, parallel to the crankplane</li> <li>(1) As for those external forces acting on crankshafts, combustion pressure and those inertial forces of reciprocating and unbalanced rotating masses are to only be considered. It is assumed that these external forces act, as a concentrated load, on the centre of crankpin bearings, and that all shafts are supported at the centre of main bearings.</li> <li>(2) Bending moments (M<sub>i</sub>) at supports are to be obtained by the following formulae. (See Fig. 1) Calculations are to be made so that they include at least 3 spans: the span of the crank throw being considered, the span directly afore such crank throw. Other spans afore or abaft may be included in the calculations as deemed necessary.</li> </ul>	<ul> <li>σ<sub>x</sub> : Axial stress due to bending moment at fillet</li> <li>σ<sub>y</sub> : Circumferential stress due to bending moment at fillet</li> <li>α<sub>KB</sub>: Stress concentration factor for bending, as shown in D2.3.1-5(1)</li> <li>Z : Section modulus of crankpin or journal</li> <li>M<sub>W</sub>: Bending moment at the centre of the web thickness, parallel to the crankplane</li> <li>(1) As for those external forces acting on crankshafts, combustion pressure and those inertial forces of reciprocating and unbalanced rotating masses are to only be considered. It is assumed that these external forces act, as a concentrated load, on the centre of crankpin bearings, and that all shafts are supported at the centre of main bearings.</li> <li>(2) Bending moments (M<sub>i</sub>) at supports are to be obtained by the following formulae. (See Fig. 1) Calculations are to be made so that they include at least 3 spans: the span of the crank throw being considered, the span directly abaft such crank throw. Other spans afore or abaft may be included in the calculations as deemed necessary.</li> </ul>	Wording correction
$\frac{3}{32} \frac{L_{i-1}^{2}}{L_{i}} M_{i-2}$	$\frac{3}{32} \frac{L_{i-1}^{2}}{L_{i}} M_{i-2}$	

Editorial Correction for Technical Rules and Guidance

$$+ \left\{ L_{i} - \frac{3}{32} \frac{L_{i-1}^{2}}{L_{i}} \left( 1 + \frac{L_{i-1}}{L_{i}} \right) - \frac{3L_{i}}{32} \left( 1 + \frac{L_{i}}{L_{i+1}} \right) \right\} M_{i-1} \\ + \left[ 2(L_{i} + L_{i+1}) + \frac{3}{32} \left\{ \frac{L_{i-1}^{2}}{L_{i}^{2}} + L_{i} \left( 1 + \frac{L_{i}}{L_{i-1}} \right)^{2} + L_{i+1} \right\} \right] M_{i} \\ + \left[ L_{i+1} - \frac{3}{32} \left\{ \frac{L_{i}^{2}}{L_{i+1}} \left( 1 + \frac{L_{i}}{L_{i+1}} \right) + L_{i+1} \left( 1 + \frac{L_{i+1}}{L_{i+2}} \right) \right\} \right] M_{i+1} \\ + \frac{3}{32} \frac{L_{i+1}^{2}}{L_{i+2}} M_{i+2} \\ + \frac{3}{32} \left\{ \frac{L_{i-1}^{2}}{L_{i}} \sum_{j} W_{i-1,j} a_{i-1,j} - L_{i} \left( 1 + \frac{L_{i}}{L_{i+1}} \right) \sum_{j} W_{i,j} a_{i,j} \\ + \frac{L_{i-1}^{3}}{L_{i}^{2}} \sum_{j} W_{i,j} (L_{i} - a_{i,j}) + L_{i+1} \sum_{j} W_{i+1,j} a_{i+1,j} \\ - \frac{L_{i}^{2}}{L_{i+1}} \left( 1 + \frac{L_{i}}{L_{i+1}} \right) \sum_{j} W_{i+1,j} (L_{i+1} - a_{i+1,j}) \\ + \frac{L_{i-1}^{2}}{L_{i+1}} \sum_{j} W_{i+2,j} (L_{i+2} - a_{i+2,j}) \right\} + \frac{1}{L_{i}} \sum_{j} W_{i,j} a_{i,j} (L_{i}^{2} - a_{i,j}^{2}) \\ + \frac{1}{L_{i+1}} \sum_{j} W_{i+1,j} a_{i+1,j} (L_{i+1} - a_{i+1,j}) (2L_{i+1} - a_{i+1,j}) = 0 \\ (3) \\ (3) \text{ Bending moments on the centre of crank webs } (M_{W}) \\ are to be obtained by the following formulae: (See Fig. 2) \\ M_{WFi} = \frac{L_{i} - L_{WAi}}{L_{i}} M_{i-1} + \frac{L_{WAi}}{L_{i}} M_{i} + (L_{i} - L_{WAi}) \sum_{j} \frac{a_{i,j}}{L_{i}} W_{i,j} \\ M_{WAi} = \frac{L_{i} - L_{WAi}}{L_{i}} M_{i-1} + \frac{L_{WAi}}{L_{i}} M_{i} + (L_{i} - L_{WAi}) \sum_{j} \frac{a_{i,j}}{L_{i}} W_{i,j} \\ \end{cases}$$

$$\begin{split} &+ \left\{ L_{i} - \frac{3}{32} \frac{L_{i-1}^{2}}{L_{i}} \left( 1 + \frac{L_{i-1}}{L_{i}} \right) - \frac{3L_{i}}{32} \left( 1 + \frac{L_{i}}{L_{i+1}} \right) \right\} M_{i-1} \\ &+ \left[ 2(L_{i} + L_{i+1}) + \frac{3}{32} \left\{ \frac{L_{i-1}^{2}}{L_{i}^{2}} + L_{i} \left( 1 + \frac{L_{i}}{L_{i-1}} \right)^{2} + L_{i+1} \right\} \right] M_{i} \\ &+ \left[ L_{i+1} - \frac{3}{32} \left\{ \frac{L_{i}^{2}}{L_{i+1}} \left( 1 + \frac{L_{i}}{L_{i+1}} \right) + L_{i+1} \left( 1 + \frac{L_{i+1}}{L_{i+2}} \right) \right\} \right] M_{i+1} \\ &+ \frac{3}{32} \frac{L_{i+1}^{2}}{L_{i+2}} M_{i+2} \\ &+ \frac{3}{32} \left\{ \frac{L_{i-1}^{2}}{L_{i}} \sum_{j} W_{i-1,j} a_{i-1,j} - L_{i} \left( 1 + \frac{L_{i}}{L_{i+1}} \right) \sum_{j} W_{i,j} a_{i,j} \\ &+ \frac{L_{i-1}^{3}}{L_{i}^{2}} \sum_{j} W_{i,j} (L_{i} - a_{i,j}) + L_{i+1} \sum_{j} W_{i+1,j} a_{i+1,j} \\ &- \frac{L_{i}^{2}}{L_{i+1}} \left( 1 + \frac{L_{i}}{L_{i+1}} \right) \sum_{j} W_{i+1,j} (L_{i+1} - a_{i+1,j}) \\ &+ \frac{L_{i-1}^{2}}{L_{i+2}} \sum_{j} W_{i+2,j} (L_{i+2} - a_{i+2,j}) \right\} + \frac{1}{L_{i}} \sum_{j} W_{i,j} a_{i,j} (L_{i}^{2} - a_{i,j}^{2}) \\ &+ \frac{1}{L_{i+1}} \sum_{j} W_{i+1,j} a_{i+1,j} (L_{i+1} - a_{i+1,j}) (2L_{i+1} - a_{i+1,j}) = 0 \\ &\qquad (3) \end{split}$$
Bending moments on the centre of crank webs  $(M_{W})$  are to be obtained by the following formulae: (See Fig. 2)  $M_{WFi} = \frac{L_{i} - l_{WAi}}{L_{i}} M_{i-1} + \frac{l_{WAi}}{L_{i}} M_{i} + l_{WFi} \sum_{j} \left( 1 - \frac{a_{i,j}}{L_{i}} \right) W_{i,j} \\ &\qquad (4) \\ M_{WAi} = \frac{L_{i} - l_{WAi}}{L_{i}} M_{i-1} + \frac{l_{WAi}}{L_{i}} M_{i} + (L_{i} - l_{WAi}) \sum_{j} \frac{a_{i,j}}{L_{i}} W_{i,j} \end{split}$ 

## Guidance for the survey and construction of steel ships Part D Annex D2.3.1, 1.2.2

Correction	Present	Note
The torsional stress at fillets due to twisting moments	The torsional stress at fillets due to twisting moments	
is to be obtained by the following formula:	is to be obtained by the following formula:	
$\tau_f = \alpha_{KT} \frac{T}{Z_p} \tag{5}$	$\tau_f = \alpha_{KT} \frac{T}{Z_p} \tag{5}$	
where	where	
$ au_f$ : Torsional stress in fillet at the root of webs	$ au_f$ : Torsional stress in fillet at the root of webs	
$\alpha_{KT}$ : Stress concentration factor for torsion, as	$\alpha_{KT}$ : Stress concentration factor for torsion, as	
specified in D2.3.1-5(1) of the Guidance	specified in <b>D2.3.1-5</b> (1)	Wording correction
$Z_p$ : Polar section modulus of crankpin or journal	$Z_p$ : Polar section modulus of crankpin or journal	C
T : Twisting moment acting on crankpin or journal,	<i>T</i> : Twisting moment acting on crankpin or journal,	
which is to be determined by sequentially	which is to be determined by sequentially	
summing up the moments from the free end side.	summing up the moments from the free end side.	
External forces to be considered are the same as	External forces to be considered are the same as	
the external forces for bending moments	the external forces for bending moments	

## Guidance for the survey and construction of steel ships Part GF GF5 GF5.8

Correction	Present	Note
In applying 5.8, Part GF of the Rules, fuel preparation rooms are to be in accordance with the following (1) to -	In applying <b>5.8</b> , <b>Part GF of the Rules</b> , fuel preparation rooms are to be in accordance with the following -1 to -4:	Wording correction
<ul> <li>(<u>4</u>:):         <ul> <li>(<u>1</u>) Fuel preparation rooms, regardless of location, are to be arranged to safely contain cryogenic leakages;</li> <li>(<u>2</u>) The material of the boundaries of the fuel preparation room is to have a design temperature corresponding</li> </ul> </li> </ul>	<ol> <li>Fuel preparation rooms, regardless of location, are to be arranged to safely contain cryogenic leakages;</li> <li>The material of the boundaries of the fuel preparation room is to have a design temperature corresponding with the</li> </ol>	
with the lowest temperature it can be subjected to in a probable maximum leakage scenario unless the boundaries of the space, i.e., bulkheads and decks, are provided with suitable thermal protection;	lowest temperature it can be subjected to in a probable maximum leakage scenario unless the boundaries of the space, i.e., bulkheads and decks, are provided with suitable thermal protection;	
(3) The fuel preparation room is to be arranged to prevent surrounding hull structure from being exposed to unacceptable cooling, in case of leakage of cryogenic liquids; and	3 The fuel preparation room is to be arranged to prevent surrounding hull structure from being exposed to unacceptable cooling, in case of leakage of cryogenic liquids; and	
<ul> <li>(4) The fuel preparation room is to be designed to withstand the maximum pressure build up during such a leakage as specified in (1) to (3) above. Alternatively, pressure relief venting to a safe location (mast) can be provided.</li> </ul>	4 The fuel preparation room is to be designed to withstand the maximum pressure build up during such a leakage as specified in -1 to -3 above. Alternatively, pressure relief venting to a safe location (mast) can be provided.	

## Guidance for the survey and construction of steel ships Part GF GF6 Table GF6.4.15

	Correction			Present		Note	
Table GF6.4.15	Allowable Stress Equivalent Stress	es for the Primary		Table GF6.4.15			
Ferrite steels	Austenic steels	Aluminium alloys		Ferrite steels	Austenic steels	Aluminium alloys	
$0.79 R_{e}$	$0.84R_{e}$	$0.79R_e$		$0.79R_{e}$	$0.84R_{e}$	$0.79R_{e}$	
$0.53R_m$	$0.42R_{m}$	$0.42R_{m}$		$0.53R_{m}$	$0.42R_{m}$	$0.42R_{m}$	
Note: For each member, the smaller of the above values is to be					above values is to be		
	used with $R_e$ and $R_m$ as specified in 6.4.12-1(1)(e(1)(a)iii), Part GF of the Rules.			used with $R_e$ and of the Rules.	$R_m$ as specified in 6.4	.12-1(1)(c), Part GF	Reference correction

#### Guidance for the survey and construction of steel ships Part GF GF6 GF6.8.1

Correction	Present	Note
The requirement on loading limits specified in 6.8.1 2, Part GF of the Rules is only applicable when a loading	Part GF of the Rules is only applicable when a loading limit	
	calculated using the formulae in 0.0.1.1, Part GF of the Kules	Reference correction
<b>Rules</b> gives a lower value than 95%.	gives a lower value than 95%.	

### Guidance for the survey and construction of steel ships Part GF Annex 1 Chapter 15 15.2.5-1

Correction	Present	Note
<b>1</b> Performance is to be in accordance with the		
requirements in <u>14.2.5</u> -1 to -3-of <u>14.2.5</u> in replacing the terms "oxygen" and "oxygen concentration" therein by the		
terms "air (where the humidity is controlled)" and		
"humidity" respectively (hereinafter the same).	respectively (hereinafter the same).	

### Guidance for the survey and construction of steel ships Part GF Annex 1 Chapter 21 21.5

Correction	Present	Note
Ships for which tests and inspections at the time of	Ships for which tests and inspections at the time of	
removable equipment installation on board were omitted in	removable equipment installation on board were omitted in	<b>W</b> 1.
accordance with the requirements in the $21.5.3$ -3 or -4-of	accordance with the requirements in the -3 or -4 of 21.5.3 are	Wording correction
21.5.3 are to present records of removable equipment	to present records of removable equipment installation and	
installation and operation to Society surveyors for	operation to Society surveyors for verification purposes	
verification purposes during periodical surveys. In this	during periodical surveys. In this respect, Society surveyors	
respect, Society surveyors may order the suspension of use of	may order the suspension of use of such removable equipment	
such removable equipment depending upon the present	depending upon the present condition of the ship and the	
condition of the ship and the removable equipment, and the	removable equipment, and the results of examinations of the	
results of examinations of the aforementioned records.	aforementioned records.	

## Guidance for the survey and construction of steel ships Part GF Annex 2A Chapter 1 1.3

Correction	Present	Note
The plans and documents to be submitted are as follows.	The plans and documents to be submitted are as follows.	
(1) Plans and documents for approval	(1) Plans and documents for approval	
(a) General arrangement	(a) General arrangement	
(b) Items specified in 18.1.3(1), (3) and,), (5) and (6),	(b) Items specified in 18.1.3(1), (3) and, (5) and (6),	Wording correction
Part D of the Rules	Part D of the Rules	
(c) Operating instructions for the automatic control	(c) Operating instructions for the automatic control	
devices and remote control devices (including	devices and remote control devices (including	
sequential control, combustion control and safety	sequential control, combustion control and safety	
devices).	devices).	
(d) Diagrams for automatic combustion control devices of <i>GCU</i>	(d) Diagrams for automatic combustion control devices of <i>GCU</i>	
(e) Gas fuel burning devices	(e) Gas fuel burning devices	
(f) Gas leak protection devices for connections	(f) Gas leak protection devices for connections	
between GCUs and gas fuel supply piping	between GCUs and gas fuel supply piping	
systems	systems	
(g) Gas fuel supply piping systems (including details	(g) Gas fuel supply piping systems (including details	
of valves and pipe fittings) and devices to protect	of valves and pipe fittings) and devices to protect	
surrounding areas, etc. from gas leakages	surrounding areas, etc. from gas leakages	
(h) Automatic control and remote control systems for	(h) Automatic control and remote control systems for	
gas fuel supply systems	gas fuel supply systems	
(i) Prototype test plans for gas fuel burning devices	(i) Prototype test plans for gas fuel burning devices	
and test results	and test results	
<ul><li>(j) Onboard test plans</li><li>(k) Test plans of gas trials specified in 16.5.1, Part</li></ul>	<ul><li>(j) Onboard test plans</li><li>(k) Test plans of gas trials specified in 16.5.1, Part</li></ul>	
GF of the Rules	GF of the Rules	
(1) Other drawings and data deemed necessary by	(1) Other drawings and data deemed necessary by	
the Society depending upon the type of $GCU$	the Society depending upon the type of <i>GCU</i>	
(2) Plans and documents for reference	(2) Plans and documents for reference	
(a) Instruction manuals (including guidance for	(a) Instruction manuals (including guidance for	
onboard maintenance, inspection and overhaul)	onboard maintenance, inspection and overhaul)	
(b) Other drawings and data deemed necessary by	(b) Other drawings and data deemed necessary by	
the Society	the Society	

#### Guidance for the survey and construction of steel ships Part K K1 K1.4.1-2

Correction	Present	Note
2 The wording "Where the quality of materials and the	2 The wording "Where the quality of materials and the	Wording correction
quality control system of manufacturer are deemed	quality control system of manufacturer are deemed	working correction
appropriate by the Society" in 1.4.1-5, Part K of the Rules,	appropriate by the Society" in 1.4.1-5, Part K of the Rules,	
means that the quality of materials and the quality control	means that the quality of materials and the quality control	
system of manufacturer are approved by the Society according	system of manufacturer are approved by the Society	
to Rules for Approval of Manufacturers and Service	according to Rules for Approval of Manufacturers or	
Suppliers or deemed equivalent thereto.	deemed equivalent thereto.	

#### Guidance for the survey and construction of steel ships Part K K1 K1.5.2-1

Correction	Present	Note
1 "It is deemed appropriate by the Society" specified in	1 "It is deemed appropriate by the Society" specified in	Wording correction
1.5.2-1 and 1.5.2-3, Part K of the Rules, means that the	1.5.2-1 and 1.5.2-3, Part K of the Rules, means that the	to oralling correction
quality of materials and the quality control system of	quality of materials and the quality control system of	
manufacturer are approved by the Society according to <b>Rules</b>	manufacturer are approved by the Society according to Rules	
for Approval of Manufacturers and Service Suppliers or	for Approval of Manufacturers or deemed equivalent	
deemed equivalent thereto.	thereto.	

## Guidance for the survey and construction of steel ships Part K K1 K1.5.2-2

Correction	Present	Note
2 Where the quality of materials and the quality control	2 Where the quality of materials and the quality control	Wording correction
system of manufacturer are approved by the Society according	system of manufacturer are approved by the Society according	working correction
to Rules for Approval of Manufacturers and Service	to Rules for Approval of Manufacturers, the manufacturer	
Suppliers, the manufacturer is to enter the following	is to enter the following statement to show that effect on the	
statement to show that effect on the test certificate specified in	test certificate specified in 1.5.2-1, Part K of the Rules.	
1.5.2-1, Part K of the Rules.		
(Example)	(Example)	
This Certificate is issued by the manufacturer under the	This Certificate is issued by the manufacturer under the	
arrangement authorized by Nippon kaiji Kyokai in the	arrangement authorized by Nippon kaiji Kyokai in the	
approved quality system (Approval Number CLQA) in	approved quality system (Approval Number CLQA) in	
accordance with Rules for Approval of Manufacturers.	accordance with Rules for Approval of Manufacturers.	

## Guidance for the survey and construction of steel ships Part K K2 K2.2.2-2

Correction			Present	Note
2	In 2.2.2-2, Part K of the Rules, corrections for	2	In 2.2.2-2, Part K of the Rules, corrections for	
elonga	tion are to be in accordance with the following:	elonga	tion are to be in accordance with the following:	
(1)	Aluminium alloy specified in Part K of the Rules are	(1)	Aluminium alloy specified in Part K of the Rules are	
	to be considered as Material I in Table K2.2, Part K		to be considered as Material I in Table K2.2, Part K	
	of the Rules.		of the Rules.	
(2)	Corrections for elongation may not be required in the case of copper alloy.	(2)	Corrections for elongation may not be required in the case of copper alloy.	
(3)	Where test specimens differing from those specified	(3)	Where test specimens differing from those specified	
	in Table K2.1, Part K of the Rules are used, the		in Table K2.1, Part K of the Rules are used, the	
	standard value of elongation are to be corrected		standard value of elongation are to be corrected	
	according to the following formula :		according to the following formula :	
	n = E/F		n = E/F	
	E: Elongation equivalent corresponding to standard		E: Elongation equivalent corresponding to standard	
	to where the proportion specimens $(L = 5.65\sqrt{A})$		to where the proportion specimens $(L = 5.65\sqrt{A})$	
	specified in Table K2.1, Part K of the Rules are		specified in Table K2.1, Part K of the Rules are	
	used		used	
	n: Elongation where optional test specimens are		n: Elongation where optional test specimens are	
	used		used	
	F: Coefficient of correction for elongation are shown		F: Coefficient of correction for elongation are shown	
	in <b>Table K2.2.2-2<del>, Part K</del></b> below according to the gauge length		in <b>Table K2.2.2-2</b> , <b>Part K</b> below according to the gauge length	Wording correction
(4)	In case (3) above, the elongation $(n)$ is to be recorded	(4)	In case (3) above, the elongation $(n)$ is to be recorded	
	in the certificates of the material test.		in the certificates of the material test.	
(5)	Diagrams for conversion of elongation between the	(5)	Diagrams for conversion of elongation between the	
	test specimens having gauge length L=200 mm or		test specimens having gauge length L=200 mm or	
	L=50 mm and the proportional specimens are as		L=50 mm and the proportional specimens are as	
	shown in Fig. K2.2.2-1 and Fig. K2.2.2-2. However,		shown in Fig. K2.2.2-1 and Fig. K2.2.2-2. However,	
	in case the of Material III, the diagram for conversion		in case the of Material III, the diagram for conversion	
	of elongation is to be according to ISO 2566-2:1984.		of elongation is to be according to ISO 2566-2:1984.	

## Guidance for the survey and construction of steel ships Part K K3 K3.1.4

Correction			Present	Note
The kind and definition of heat treatment referred to in Remarks (3) in Table K3.3, Part K of the Rules are as follows: (Refer to FigFigs. K3.1.4-1 and K3.1.4-2)		Remarl	The kind and definition of heat treatment referred to in ks (3) in Table K3.3, Part K of the Rules are as s: (Refer to Fig. K3.1.4-1 and -2)	Wording correction
(1)	As Rolled $(AR)$ involves steel being air cooled as it is rolled with no further heat treatment. The rolling and finishing temperature are typically in the austenite recrystallization region and above the normalizing temperature.	(1)	As Rolled $(AR)$ involves steel being air cooled as it is rolled with no further heat treatment. The rolling and finishing temperature are typically in the austenite recrystallization region and above the normalizing temperature.	
(2)	Normalizing $(N)$ involves heating rolled steel above the critical temperature, $Ac3$ , and in the lower end of the austenite recrystallization region for a specific period of time, followed by air cooling.	(2)	Normalizing ( $N$ ) involves heating rolled steel above the critical temperature, $Ac3$ , and in the lower end of the austenite recrystallization region for a specific period of time, followed by air cooling.	
(3)	Quenching and Tempering $(QT)$ involves heating rolled steel in the austenite recrystallization region for a specific period of time, followed by rapid cooling, and shortly thereafter involves heating rolled steel under the critical temperature, $Ac1$ , followed by air cooling. The wording "direct quenching after rolling" in <b>Fig. K3.1.4-1</b> means that the quenching is rapidly carried out.	(3)	Quenching and Tempering $(QT)$ involves heating rolled steel in the austenite recrystallization region for a specific period of time, followed by rapid cooling, and shortly thereafter involves heating rolled steel under the critical temperature, $Ac1$ , followed by air cooling. The wording "direct quenching after rolling" in <b>Fig. K3.1.4-1</b> means that the quenching is rapidly carried out.	
(4)	Controlled Rolling ( $CR$ ) (Normalizing Rolling ( $NR$ )) is one of heat treatment methods in which heating temperature, rolling temperature and rolling reduction are controlled to fine steel structure and improve mechanical properties. The rollings are generally finished in low austenite temperature range between normalizing temperature and $Ar3$ transition temperature followed by air cooling.	(4)	Controlled Rolling ( $CR$ ) (Normalizing Rolling ( $NR$ )) is one of heat treatment methods in which heating temperature, rolling temperature and rolling reduction are controlled to fine steel structure and improve mechanical properties. The rollings are generally finished in low austenite temperature range between normalizing temperature and $Ar3$ transition temperature followed by air cooling.	
(5)	Thermo-Mechanical Controlled Processing ( <i>TMCP</i> ) is a kind of heat treatment being based on the strict control of both the steel temperature and rolling reduction and is divided into the following two	(5)	Thermo-Mechanical Controlled Processing ( <i>TMCP</i> ) is a kind of heat treatment being based on the strict control of both the steel temperature and rolling reduction and is divided into the following two	

categories.	categories.	
(a) Thermo-Mechanical Rolling: TMR	(a) Thermo-Mechanical Rolling: TMR	
A kind of controlled rolling, generally a high	A kind of controlled rolling, generally a high	
proportion of rolling reduction is carried out	proportion of rolling reduction is carried out	
close to or below the Ar3 transition temperature.	close to or below the Ar3 transition temperature.	
The rolling towards the lower end of the		
austenite-ferrite intercritical duplex phase region	austenite-ferrite intercritical duplex phase region	
may be included into TMR.	may be included into TMR.	
(b) Accelerated Cooling Processing: AcC	(b) Accelerated Cooling Processing: AcC	
After completion of thermo-mechanical rolling,	After completion of thermo-mechanical rolling,	
homogeneous cooling was made with adequate	homogeneous cooling was made with adequate	
cooling speed faster than air cooling in the range	cooling speed faster than air cooling in the range	
of Ar3 transition temperature or below.	of Ar3 transition temperature or below.	

## Guidance for the survey and construction of steel ships Part K K5 K5.7.10

	Correction		Present	Note
The wording "to be as deemed appropriate by the			The wording "to be as deemed appropriate by the	Wording correction
Societ	y" in 7.2.11-3, Part K of the Rules means to comply	Society	" in 7.2.11-3, Part K of the Rules means to comply	
with th	ne following.	with th	e following.	
(1)	The kinds of weldings are to be either MIG or TIG	(1)	The kinds of weldings are to be either <i>MIG</i> or <i>TIG</i>	
	welding, and the position of welding is, in principle,		welding, and the position of welding is, in principle,	
	to be flat. The welding consumables are, in principle,		to be flat. The welding consumables are, in principle,	
	to be aluminium bronze or the common metals.		to be aluminium bronze or the common metals.	
(2)	The welders are to have qualifications deemed	(2)	The welders are to have qualifications deemed	
	appropriate by the Society.		appropriate by the Society.	
(3)	The preheating and stress relieving heat treatment	(3)	The preheating and stress relieving heat treatment	
	following the repair weldings are to be in accordance		following the repair weldings are to be in accordance	
	with the requirements given in Table Tables K7.2.11-		with the requirements given in Table K7.2.11-1 and	
	1 and K7.2.11-2. The area to be heat treated is to be as		<b>K7.2.11-2</b> . The area to be heat treated is to be as large	
	large as possible.		as possible.	
(4)	Welding grooves are to be prepared in a manner that	(4)	Welding grooves are to be prepared in a manner that	
	allows good fusion of the groove bottom.		allows good fusion of the groove bottom.	
(5)	The welding procedure qualification tests are to be	(5)	The welding procedure qualification tests are to be	
	carried out in the presence of a Surveyor as follows:		carried out in the presence of a Surveyor as follows:	

(a)	Tes	sts for butt welding	(a)	Tes	sts for butt welding	
	i)	Test sample		i)	Test sample	
		The minimum dimensions of the test sample			The minimum dimensions of the test sample	
		are to be as shown in <b>Fig. K7.2.11-1</b> .			are to be as shown in <b>Fig.K7.2.11-1</b> .	
	ii)	Non-destructive inspection		ii)	5	
	,	Test assemblies are to be examined by visual			Test assemblies are to be examined by visual	
		and liquid penetrant tests prior to the cutting			and liquid penetrant tests prior to the cutting	
		of test specimens. The welded surface is to			of test specimens. The welded surface is to	
		be regular and uniform and free from			be regular and uniform and free from	
		prejudicial defects such as cracks and			prejudicial defects such as cracks and	
		undercuts. In cases where post-weld heat			undercuts. In cases where post-weld heat	
		treatment is carried out, non-destructive			treatment is carried out, non-destructive	
		inspections are to be performed after the heat			inspections are to be performed after the heat	
		treatment. Imperfections detected by liquid			treatment. Imperfections detected by liquid	
		penetrant tests are to be assessed in			penetrant tests are to be assessed in	
		accordance with Annex K7.2.10			accordance with Annex K7.2.10	
		"GUIDANCE FOR THE PENETRANT			"GUIDANCE FOR THE PENETRANT	
		TEST OF PROPELLER CASTINGS".			TEST OF PROPELLER CASTINGS".	
	iii)	Macro-etching test		iii)	Macro-etching test	
		Three test specimens are to be prepared and			Three test specimens are to be prepared and	
		etched on one side to clearly reveal the weld			etched on one side to clearly reveal the weld	
		metal, the fusion line and the HAZ. No pores			metal, the fusion line and the HAZ. No pores	
		greater than 3 mm and cracks in welded			greater than 3 mm and cracks in welded	
		sections are to be permitted.			sections are to be permitted.	
	iv)	Tensile test		iv)	Tensile test	
		The shapes and dimensions of the tensile test			The shapes and dimensions of the tensile test	
		specimens are to be of kind $U2A$ or $U2B$			specimens are to be of kind $U2A$ or $U2B$	
		given in Table 3 <u>M3</u> .1, Part M of the Rules.			given in Table 3.1, Part M of the Rules.	
		The number of tensile test specimens is to be			The number of tensile test specimens is to be	
		two. The tensile strength is to be in			two. The tensile strength is to be in	
		compliance with Table K7.2.11-3.			compliance with Table K7.2.11-3.	
(b)		st of mold cavity welding	(b)		st of mold cavity welding	
	i)	Test piece		i)	Test piece	
		The dimensions of the test piece are to be as			The dimensions of the test piece are to be as	

	shown in <b>FigK7.2.11-2</b> .	shown in <b>Fig.K7.2.11-2</b> .	
	ii) Macrostructure test	ii) Macrostructure test	
	Macrostructure tests are to confirm that no	Macrostructure tests are to confirm that no	
	any defects such as crack exist in the cross	any defects such as crack exist in the cross	
	sections of weld parts.	sections of weld parts.	
	iii) Microstructure test	iii) Microstructure test	
	Microstructure tests are to confirm that the	Microstructure tests are to confirm that the	
	microstructures of the deposit metal, base	microstructures of the deposit metal, base	
	metal and heat-affected zones are in	metal and heat-affected zones are in	
	satisfactory condition.	satisfactory condition.	
	iv) Hardness test	iv) Hardness test	
	Hardness tests are to confirm that there is no	Hardness tests are to confirm that there is no	
	unacceptable fluctuation in hardness	unacceptable fluctuation in hardness	
	between the deposit metal, base metal and	between the deposit metal, base metal and	
	heat-affected zones.	heat-affected zones.	
(6)	Where the tests specified in the preceding (5) fail,	(6) Where the tests specified in the preceding (5) fail,	
	retests are to be in accordance with 4.2.12, Part M of	retests are to be in accordance with 4.2.12, Part M of	
	the Rules.	the Rules.	
(7)	The scope of approval of the welding procedures and	(7) The scope of approval of the welding procedures and	
	related specifications of propeller castings are to be in	related specifications of propeller castings are to be in	
	accordance with the following (a) through (h), on the	accordance with the following (a) through (h), on the	
	condition that the other welding conditions are same. $(\cdot) = \mathbb{P}$	condition that the other welding conditions are same.	
	(a) Base metal	(a) Base metal	
	Range of approval for propeller castings is	Range of approval for propeller castings is	
	limited to be in accordance with <b>Table K7.2.11</b> -4.	limited to be in accordance with <b>Table K7.2.11</b> -4.	
	4. (b) Thickness	4. (b) Thickness	
	Range of thickness is to be in accordance with	Range of thickness is to be in accordance with	
	Table K7.2.11-5.	Table K7.2.11-5.	
	(c) Welding position	(c) Welding position	
	Approval for a test made in any position is	Approval for a test made in any position is	
	restricted to that position.	restricted to that position.	
	(d) Welding process	(d) Welding process	
	Approval is only valid for the welding process	Approval is only valid for the welding process	
	reprover is only vend for the wording process	reprover is only value for the working process	

	used in the welding procedure test. Single run is		used in the welding procedure test. Single run is	
	not qualified by a multi-run butt weld test.		not qualified by a multi-run butt weld test.	
(e)	Filler metal	(e)	Filler metal	
	Approval is only valid for the filler metal used in		Approval is only valid for the filler metal used in	
	the welding procedure test.		the welding procedure test.	
(f)	Heat input	(f)	Heat input	
	The upper limit of heat input approved is 25 %		The upper limit of heat input approved is 25 %	
	greater than that used in welding the test piece.		greater than that used in welding the test piece.	
	The lower limit of heat input approved is 25 %		The lower limit of heat input approved is 25 %	
	lower than that used in welding the test piece.		lower than that used in welding the test piece.	
(g)	Preheating and interpass temperature	(g)	Preheating and interpass temperature	
$(\mathcal{O})$	The minimum preheating temperature is not to be	(8)	The minimum preheating temperature is not to be	
	less than that used in the qualification test. The		less than that used in the qualification test. The	
	maximum interpass temperature is not to be		maximum interpass temperature is not to be	
	higher than that used in the qualification test.		higher than that used in the qualification test.	
(h)	Post-weld heat treatment	(h)	Post-weld heat treatment	
(11)	Heat treatment used in the qualification test is to	(11)	Heat treatment used in the qualification test is to	
	be maintained during actual work. Holding time		be maintained during actual work. Holding time	
	may be adjusted as a function of thickness.		may be adjusted as a function of thickness.	
	may be aujusted as a function of unexitess.		may be aujusted as a function of the Kness.	

#### Guidance for the survey and construction of steel ships Part L L1 L1.4.1-2

Correction	Present	Note
2 The wording "deemed appropriate by the Society" in	2 The wording "deemed appropriate by the Society" in	
1.4.1-4, Part L of the Rules, means that the quality of	1.4.1-4, Part L of the Rules, means that the quality of	
equipment and the quality control system of manufacturer are	equipment and the quality control system of manufacturer are	
	approved by the Society according to "Rules for Approval of	
Manufacturers and Service Suppliers" or deemed	Manufacturers" or deemed equivalent thereto.	Wording correction
equivalent thereto.		0

### Guidance for the survey and construction of steel ships Part L L2 L2.1.9-1

Correction	Present	Note
1 "Additional non-destructive test" specified in 2.1.9-	1 "Additional non-destructive test" specified in 2.1.9-4,	Reference correction
4 <u>3</u> Part L of the Rules means the followings:	Part L of the Rules means the followings:	
(1) Ultrasonic testing in random area of castings (for	(1) Ultrasonic testing in random area of castings (for	
example, root of arm, shank, head pin, etc.)	example, root of arm, shank, head pin, etc.)	
(2) Non-destructive test in 2.1.11-3, Part L of Rules,	(2) Non-destructive test in 2.1.11-3, Part L of Rules,	
even in case of components for cast used excluding	even in case of components for cast used excluding	
super high holding power anchors	super high holding power anchors	

## Guidance for the survey and construction of steel ships Part L L2 L2.1.9-2

Correction	Present	Note
2 "Mechanical test" specified in 2.1.9-4 <u>3</u> Part L of the	2 "Mechanical test" specified in 2.1.9-4, Part L of the	Reference correction
Rules is to be conducted in accordance with the requirement	Rules is to be conducted in accordance with the requirement	
of 2.1.3-2, Part L of the Rules.	of <b>2.1.3-2</b> .	

#### Guidance for the survey and construction of steel ships Part L L2 L2.2.8-1

Correction	Present	Note
1 The "additional non-destructive tests" specified in	1 The "additional non-destructive tests" specified in	Reference correction
2.2.8-43, Part L of the Rules means the following:	2.2.8-4, Part L of the Rules means the following:	
(1) Ultrasonic testing in random areas of the casting	(1) Ultrasonic testing in random areas of the casting	
selected by the attending surveyor. For example, the	selected by the attending surveyor. For example, the	
roots of arms, shanks, head pins, etc.	roots of arms, shanks, head pins, etc.	
(2) The non-destructive tests specified in 2.2.10-1(2),	(2) The non-destructive tests specified in 2.2.10-1(2),	
Part L of the Rules.	Part L of the Rules.	

#### Guidance for the survey and construction of steel ships Part L L2 L2.2.8-2

Correction	Present	Note
specified in 2.2.8-43, Part L of the Rules means test	2 The "impact tests deemed appropriate by the Society" specified in 2.2.8-4, Part L of the Rules means test conducted in accordance, mutatis mutandis, with the requirements of 2.2.3-2, Part L of the Rules.	

## Guidance for the survey and construction of steel ships Part L L2 L2.2.11-1

Correction	Present	Note
1 "Holding power tests designated by the Society" refers	1 "Holding power tests designated by the Society" refers	
to the tests specified in 1.6.1(3), Part 2 of the "Guidance for	to the tests specified in 1.6.1(3), Part 2 of the "Guidance for	
the Approval and Type Approval of Materials and	the Approval and Type Approval of Materials and	
Equipment for Marine Use". For anchors intended to be	Equipment for Marine Use". For anchors intended to be used	
used for vessels and floating offshore facilities fixed or	for vessels and floating offshore facilities fixed or positioned	
positioned at specific sea areas for long periods of time, it	at specific sea areas for long periods of time, it means the tests	Warding
means the tests specified in 1A21A.2.2(3)(b), Part 2 of the	specified in 1A2.2(3)(b), Part 2 of the "Guidance for the	Wording correction
"Guidance for the Approval and Type Approval of	Approval and Type Approval of Materials and Equipment	
Materials and Equipment for Marine Use".	for Marine Use".	

## Guidance for the survey and construction of steel ships Part L L3 L3.2.5-2

Correction	Present	Note
2 The wording "where specially approved by the	2 The wording "where specially approved by the	
Society" specified in 3.2.5-7, Part <u>KL</u> of the Rules, means	Society" specified in 3.2.5-7, Part K of the Rules, means that	
that it is verified that any part of common links which are	it is verified that any part of common links which are	Reference correction
connected with connecting common link under the proposed	connected with connecting common link under the proposed	
connecting method has not been adversely affected and that	connecting method has not been adversely affected and that	
such connecting method is approved by the Society and the	such connecting method is approved by the Society and the	
purchaser.	purchaser.	

## Guidance for the survey and construction of steel ships Part M M2 Table M2.1.1-2

Correction		Present	Note	
	Table M2.1.1-2	Application of Weldin	g Consumables (Aluminium Alloys)	Reference correction
	Kind and grade of a	luminium alloy to be welded	Grade of applicable welding consumables	
		5754P	RA/WA, RB/WB, RC/WC	
		5086P, 5086S	RB/WB, RC/WC	
	5000	5083P, 5083S	RC/WC	
	5000 series	5383P, 5383S	RC/WC	
		5059P, 5059S	RC/WC	
		5456P	RC/WC	
		6005 <i>AS</i>	RD/WD	
	6000 series	6061 <i>P</i> , 6061 <i>S</i>	RD/WD	
		6082 <i>S</i>	RD/WD	
	Note:			
	•	e	nsumables in this Table are the last two characters Table M6.51 <del>., Part M of the Rules.</del>	

## Guidance for the survey and construction of steel ships Part M M2 Table M2.1.1-3

Correction		Present	Note
(Steel tubes	for boiler and heat exchan	on of Welding Consumables ngers, steel pipes for pressure piping,	Reference correction
	eaders and steel pipes for		
Kind of base pipe (or tube)	Grade of base pipe (or tube) KSTB33, KSTB35, KSTPG38, KSTS38, KSTPT38	Grade of applicable welding consumables <sup>(1)</sup> 1, 2, 3, 51, 52, 53, 54, 52Y40, 53Y40, 54Y40, 55Y40, L1, L2, L3	
Steel tubes for boilers and heat exchangers, steel pipes for pressure piping, headers	KSTB42, KSTPG42, KSTS42, KSTPT42, KBH-1		
	<i>KSTS</i> 49, <i>KSTPT</i> 49, <i>KBH</i> -2	51, 52, 53, 54, 52 <i>Y</i> 40, 53 <i>Y</i> 40, 54 <i>Y</i> 40, 55 <i>Y</i> 40, <i>L</i> 3, 2 <i>Y</i> 42, 3 <i>Y</i> 42, 4 <i>Y</i> 42, 5 <i>Y</i> 42	
	KLPA	<i>L</i> 1, <i>L</i> 2, <i>L</i> 3, 54, 54 <i>Y</i> 40, 55 <i>Y</i> 40	
Steel pipes for low temperature service	KLPB, KLPC	L2, L3	
	KLP9	L91, L92	
M6.12, Table example, "3" in	M6.21, Table M6.29 or Table M6	above indicate materials which are specified in <b>Table M6.1</b> , <b>Table 6.58<u>, Part M of the Rules</u></b> that have the same mark at the end. (For <i>KEW</i> 3; " <i>L</i> 3" indicates <i>KMWL3</i> , <i>KAWL</i> 3 and <i>KSWL3</i> ; and "3 <i>Y</i> 42"	

## Guidance for the survey and construction of steel ships Part M M2 Table M2.1.1-4

Correction	_	Present	Note
Та	ble M2.1.1-4 Application (Rolled steels for boilers)	on of Welding Consumables s and pressure vessels)	Reference correction
Kind of base plate	Grade of base plate	Grade of applicable welding consumables <sup>(1)</sup>	
	KP42	51, 52, 53, 54, 52 <i>Y</i> 40, 53 <i>Y</i> 40, 54 <i>Y</i> 40, 55 <i>Y</i> 40, <i>L</i> 2, <i>L</i> 3, 2 <i>Y</i> 42, 3 <i>Y</i> 42, 4 <i>Y</i> 42, 5 <i>Y</i> 42	
Rolled steel for boilers	KP46, KPA46, KP49, KPA49	51, 52, 53, 54, 52 <i>Y</i> 40, 53 <i>Y</i> 40, 54 <i>Y</i> 40, 55 <i>Y</i> 40, <i>L</i> 3, 2 <i>Y</i> 42, 3 <i>Y</i> 42, 4 <i>Y</i> 42, 5 <i>Y</i> 42	
	KPV24 <sup>(2)</sup>	2, 3, 52, 53, 54, 52 <i>Y</i> 40, 53 <i>Y</i> 40, 54 <i>Y</i> 40, 55 <i>Y</i> 40, 2 <i>Y</i> 42, 3 <i>Y</i> 42, 4 <i>Y</i> 42, 5 <i>Y</i> 42	
	KPV <b>32</b> <sup>(3)</sup>	52, 53, 54, 52 <i>Y</i> 40, 53 <i>Y</i> 40, 54 <i>Y</i> 40, 55 <i>Y</i> 40, 2 <i>Y</i> 42, 3 <i>Y</i> 42, 4 <i>Y</i> 42, 5 <i>Y</i> 42	
Rolled steel for pressure vessels	KPV36	63 <i>Y</i> 47, 2 <i>Y</i> 42, 3 <i>Y</i> 42, 4 <i>Y</i> 42, 5 <i>Y</i> 42, 2 <i>Y</i> 46, 3 <i>Y</i> 46, 4 <i>Y</i> 46, 5 <i>Y</i> 46, 3 <i>Y</i> 50, 4 <i>Y</i> 50, 5 <i>Y</i> 50	
	<i>KPV</i> <b>42</b> , <i>KPV</i> <b>46</b>	63	
	KPV <b>50</b>	3755, 4755, 5755, 3762, 4762, 5762	
<ul> <li>Table M6.12, 7</li> <li>end. (For example and "3<i>Y</i>42" ind</li> <li>(2) The symbols for applicable only</li> </ul>	Table M6.21, Table M6.29 or T         ple, "3" indicates KMW3, KAW3,         icates KMW3Y42, KAW3Y42 and         or the welding consumables lists         for KMW and KSW.         r the welding consumables listed	ed above indicate materials which are specified in <b>Table M6.1</b> , <b>able M6.58<u>, Part M of the Rules</u> that have the same mark at the , <i>KSW</i>3 and <i>KEW</i>3; "<i>L</i>3" indicates <i>KMWL3</i>, <i>KAWL</i>3 and <i>KSWL3</i>; <i>KSW</i>3Y42.) ed above as "2, 3, 52, 53, 54, 52Y40, 53Y40, 54Y40, 55Y40" are above as "52, 53, 54, 52Y40, 53Y40, 54Y40, 55Y40" are applicable</b>	

## Guidance for the survey and construction of steel ships Part M M2 M2.2.1-1

Correction	Present	Note
1 In 2.2.1(2), Part M of the Rules, for steels considered	1 In 2.2.1(2), Part M of the Rules, for steels considered	Reference correction
to have the brittle crack arrest properties specified in 3.12,	to have the brittle crack arrest properties specified in 3.12,	
Part K of the Rules, the welding procedures and related	Part K of the Rules, the welding procedures and related	
specifications approved for the steels excluding "BCA6000"	specifications approved for the steels excluding "BCA6000"	
or "BCA8000" given in Table K3.40 or Table K3.41, Part K	or "BCA8000" given in Table K3.40 or Table K3.41, Part K	
of the Rules, may be applied except for the large heat input	of the Rules, may be applied except for the large heat input	
welding specified in Note (56) of Table M4.2, Part M of the	welding specified in Note (5) of Table M4.2, Part M of the	
Rules.	Rules.	

## Guidance for the survey and construction of steel ships Part M M2 M2.2.2-1

Correction	Present	Note
1 For 2.2.2-2(2), Part M of the Rules, suffixes added to	1 For 2.2.2-2(2), Part M of the Rules, suffixes added to	Reference correction
the grades specified in Table K3.40 or Table K3.41, Part K	the grades specified in Table K3.40 or Table K3.41, Part K	
of the Rules (e.g. "-BCA6000") need not be included except	of the Rules (e.g. "-BCA6000") need not be included except	
for the large heat input welding specified in Note $(\underline{56})$ of	for the large heat input welding specified in Note (5) of Table	
Table M4.2, Part M of the Rules.	M4.2, Part M of the Rules.	

			Co	orrectio	n							Pre	esent			Note
Table M2.4	4.3-1	Con	trol S	Standar	ds fo	r the Proc			elding o e Servic		Steels	for Hulls	s and Ro	lled Steels	s for Low	Reference correction
	ems ontrol s	for standard	Mild	steel	High t	ensile steels	(1)	÷				Rolled steels for low temperature service <sup>(13)</sup>				
				r		ntional type		TMCP					-			
			Grad e	Control standar d		Control star	ndard	e	Carbon equivalen t for steel $C_{eq}^{(3)(4)(5)}$	Control sta	ndard	Carbon equivalen t for steel $C_{eq}^{(3)(4)(5)}$	Control st	andard		
of		Tack and repair	KE	30 mm or over	KA32 KD32 KE32	50 mm or o	ver <sup>(12)</sup>		0.36% or below <sup>(7)</sup>	10 <i>mm</i> or o	ver <sup>(8)</sup>	More than 0.36%	50 mm or	over		
be	ead (6)	weld of scar										below	10 <i>mm</i> or			
		Repairi ng of welded			KA36 KD36 KE36			KA36 KD36 KE36		30 <i>mm</i> or c	ver	More than 0.36%	50 <i>mm</i> or			
D		bead	VA		V 122			K 422	0.2(0/			below	30 <i>mm</i> or			
tir	ng in vorkin	need	KB KD	-5°C or below	KE32	5°C or belo	$\mathbf{w}^{(10)(12)}$	KD32 KE32	0.36% or below <sup>(7)</sup>	0°C or belo	ow <sup>(10)</sup>	More than 0.36%	5°C or bel			
g		preheati ng (9)	KE		KA36			KA36				0.36% or below	0°C or bel	ow		
		Preheati ng tempera		20°C or over	KD36 KE36	50°C or ove	er	KD36 KE36		20°C or ov	er	More than 0.36%	50°C or o			
		ture		(11)							1	0.36% or below	20°C or ov	ver		
he (T m	eating Ther nal niring	Maxim um heating tempera ture of steel	KB KD	(11)	KD32 KE32	Water cooling just after heating	650°C or below		below	Water cooling just after heating	1000°C or below	_	Air cooling after	900°C or below		
,		Surface				Air cooling after heating	900°C or below			Air cooling after heating			heating	00100		

## Guidance for the survey and construction of steel ships Part M M2 Table M2.4.3-1

#### Editorial Correction for Technical Rules and Guidance

					Air cooli and subso wate cooli after heati	ling sequent er ling ting ting			0.38% or below	cooling	or below	than 0.36%	cooling and subsequen t water cooling after heating	900°C or below (Starting temperatur e of water cooling is to be 500° C or below) 900°C or below (Starting temperatur e of water cooling is to be 550° C or below)				
--	--	--	--	--	---	---	--	--	-------------------	---------	-------------	---------------	---	--	--	--	--	--

Notes:

(1) In *KA*40, *KD*40, *KE*40 and *KE*47, the control standards for the conventional high tensile steels are applied except for the case specially approved by the Society. *KF*32, *KF*36 and *KF*40 are to be as deemed to appropriate by the Society.

- (2) The conventional type is the high tensile steel of which grades of heat treatment specified in Notes (3) of Table K3.3, <u>Part K of the Rules</u>, as other than the *TMCP* type.
- (3)  $C_{eq}$  is to be calculated by the following formula and is to be rounded to two decimal places.

$$C_{eq} = C + \frac{Mn}{6} + \frac{Cr + Mo + V}{5} + \frac{Ni + Cu}{15}$$
(%)

- (4) The control standards when the value of  $C_{eq}$  exceeds the value in this Table, in principle, are to be applied as conventional type.
- (5) When there are differences in  $C_{eq}$  of the steel materials, the control standard corresponding to the higher value of  $C_{eq}$  is to be applied.
- (6) The length of bead is to be measured from the starting point of weld to the centre of the crater at the termination of the weld.
- (7) Where cold cracking susceptibility  $P_{cm}$  is substituted for  $C_{eq}$ , the control standards are to be as deemed to appropriate by the Society.  $P_{cm}$  is to be calculated by the following formula and is to be rounded to two decimal places.

$$P_{cm} = C + \frac{Si}{30} + \frac{Mn}{20} + \frac{Cu}{20} + \frac{Ni}{60} + \frac{Cr}{20} + \frac{Mo}{15} + \frac{V}{10} + 5B \quad (\%)$$

- (8) It is recommended that for *KE*32 and *KE*36 to be not less than 30 mm.
- (9) Even in cases where the temperature exceeds the value given in this Table, preheating may be required depending on the thickness of steel materials, degree of restrain and welding heat input.
- (10) Electrodes are to be of the low hydrogen electrodes. However, in horizontal butt welding, overhead fillet welding, etc., extremely low hydrogen electrodes (the quantity of hydrogen measured by the glycerine replacement method is not more than  $0.03 \text{ } cm^3/g$ ) is to be used, or in cases the temperature exceeds the value in this Table. Preheating is to be carried out.
- (11) It is recommended that the conventional control standards for the conventional high tensile steels are applied to KE.
- (12) For KE47, in the cases where  $P_{cm}$  is less than or equal to 0.19, 25 mm of short bead length and air temperature of 0°C or below may be adopted where

approved by the Society.

- (13) These control standards apply to *KL24A*, *KL24B*, *KL27*, *KL33* and *KL37*. The standards for other grades are to be as deemed appropriate by the Society.
- (14) For steels considered to have brittle crack arrest properties specified in 3.12, Part K of the Rules, the control standards for the steels excluding *"BCA6000"* or *"BCA8000"* given in Table K3.40 or Table K3.41, Part K of the Rules, are to be applied.

### Guidance for the survey and construction of steel ships Part M M4 M4.1.4-1

Correction	Present	Note
1 Application of provisory requirement specified in		Reference correction
4.1.4-1, Part M of the Rules is to be applied to 4.1.4-1(4)(c),	4.1.4-1, Part M of the Rules is to be applied to 4.1.4-1(4)(c),	
Part M of the Rules and to be in accordance with Table	Part M of the Rules and to be in accordance with Table 4.1.4-	
4 <u>M4</u> .1.4-1. In this case, test records which the Surveyor	1. In this case, test records which the Surveyor deems	
deems appropriate are to be submitted to the Surveyor.	appropriate are to be submitted to the Surveyor.	

#### Guidance for the survey and construction of steel ships Part M M4 M4.1.4-2

Correction	Present	Note
2 With respect to the provisions of 4.1.4-1(1) and -2(1),	2 With respect to the provisions of $4.1.4-1(1)$ and $-2(1)$ ,	Reference correction
Part M of the Rules, fillet weld joints, T-joints with full	Part M of the Rules, fillet weld joints, T-joints with full	
penetration and T-joints with partial penetration welding	penetration and T-joints with partial penetration welding	
positions included in the approval of butt welding are to be in	positions included in the approval of butt welding are to be in	
accordance with the following.	accordance with the following.	
(1) For plates, Table M4.1.4-2 of this guidance and	(1) For plates, Table M4.1.4-2 and Table M5.10, Part	
Table M5.10, Part M of the Rules	M of the Rules	
(2) For pipes, Table M4.1.4-3 of this guidance and	(2) For pipes, Table M4.1.4-3 and Table M5.11, Part M	
Table M5.11, Part M of the Rules	of the Rules	

## Guidance for the survey and construction of steel ships Part M M4 M4.1.4-4

	Correction		Present	Note
4	The wording "deemed appropriate by the Society"	4	The wording "deemed appropriate by the Society"	Reference correction
-	specified in 4.1.4-3, Part M of the Rules means the following		ed in 4.1.4-3, Part M of the Rules means the following	
(1) to (		(1) to (		
(1)	Heat input	(1)	Heat input	
	Heat input of welding for actual works is to be		Heat input of welding for actual works is to be	
	complied with the requirements specified in the		complied with the requirements specified in the	
	following (a) and (b).		following (a) and (b).	
	(a) The upper limit of heat input approved is 1.25		(a) The upper limit of heat input approved is 1.25	
	times the heat input used in welding the test		times the heat input used in welding the test	
	piece, but not over 55 $kJ/cm$ . However, for high		piece, but not over 55 $kJ/cm$ . However, for high	
	heat input processes specified in <u>Note (6) of</u>		heat input processes specified in Table 4.2	
	Table 4 <u>M4.2 Notes(5)</u> , Part M of the Rules, the		Notes(5), Part M of the Rules, the upper limit is	
	upper limit is 1.1 time the heat input used in		1.1 time the heat input used in welding the test	
	<ul><li>welding the test piece.</li><li>(b) The lower limit of heat input approved is 0.75</li></ul>		piece. (b) The lower limit of heat input approved is 0.75	
	times the heat input used in welding the test		times the heat input used in welding the test	
	piece.		piece.	
(2)	Preheating and interpass temperature	(2)	Preheating and interpass temperature	
(2)	Preheating and interpass temperature for actual work	(2)	Preheating and interpass temperature for actual work	
	are to be complied with the requirements specified in		are to be complied with the requirements specified in	
	the following (a) and (b).		the following (a) and (b).	
	(a) The minimum preheating temperature is that used		(a) The minimum preheating temperature is that used	
	in the qualification test.		in the qualification test.	
	(b) The maximum interpass temperature is that used		(b) The maximum interpass temperature is that used	
	in the qualification test.		in the qualification test.	
(3)	Post-weld heat treatment	(3)	Post-weld heat treatment	
	The heat treatment used in the qualification test is to		The heat treatment used in the qualification test is to	
	be maintained during actual work. Holding time may		be maintained during actual work. Holding time may	
	be adjusted as a function of thickness.		be adjusted as a function of thickness.	

#### Guidance for the survey and construction of steel ships Part M M4 Table M4.1.4-7

Correction	1			Present	Note
	Table N	4.1.4-7	Kind of Alu	ninium Alloys	Reference correcti
Grade of test assembly			Material classification	Range of approval <sup>(2), (3)</sup>	
		5754P	А	(A+A)	
Aluminium alloys <sup>(1)</sup>	5000 series	5086P, 5086S, 5083P, 5083S, 5383P, 5383S, 5059P, 5059S, 5456P	В	(A+A), (B+B), (A+B)	
	6000 series	6005 <i>AS</i> 6061 <i>P</i> , 6061 <i>S</i> 6082 <i>S</i>	С	(C+C)	
Notes:					
(2) K of the (2) Combin alloys w includes (3) The qua	e Rules). ation of the s vithin the sar s welded join alification of	ame material's classi ne material's classifi ts of different grade o one alloy also qua	fication includes v ication. Combinat of aluminium allo ilifies the procedu	ed (See Table K8.3 <u>(a), Table K8.3(b), Part</u> velded joints of different grade of aluminium ion of the different material's classification ys within each material's classification. ures for other alloys of the same material e strength after welding.	

## Guidance for the survey and construction of steel ships Part M M4 M4.2.7-1

Correction	Present	Note
1 With respect to Table4.9-Notes (1);) of Table M4.9,	1 With respect to Table4.9 Notes (1), Part M of the	Reference correction
Part M of the Rules, the wording "impact test requirements	Rules, the wording "impact test requirements deemed	
deemed appropriate by the Society" refers to the following.	appropriate by the Society" refers to the following.	
(1) Where the thickness of test assemblies is more than	(1) Where the thickness of test assemblies is more than	
50 mm and not exceeding 70 mm, values in Table	50 mm and not exceeding 70 mm, values in Table	
M4.2.7-1.	M4.2.7-1.	
(2) Where the thickness of test assemblies is exceeding	(2) Where the thickness of test assemblies is exceeding	
70 mm, values deemed appropriate by the Society.	70 mm, values deemed appropriate by the Society.	

## Guidance for the survey and construction of steel ships Part M M4 Table M4.3.1-2

	Correction			Present	Note		
Tab	Table M4.3.1-2   Acceptance Criteria			Table M4.3.1-2 Acceptance Criteria			
Surface cracks	Liquid penetrant tests or magnetic particle tests are to be carried out for the whole length of the bead in 48 <i>hours</i> after completion of welding, where by it is to be verified that there are no surface cracks. However, cracks are not to be regarded as surface cracks.	:	Surface cracks	Liquid penetrant tests or magnetic particle tests are to be carried out for the whole length of the bead in 48 <i>hours</i> after completion of welding, where by it is to be verified that there are no surface cracks. However, cracks are not to be regarded as surface cracks.	Reference correction		
Sectional cracks	For the three sectional faces of welds excluding craters, root cracks and toe cracks are to be inspected with a magnifying glass (magnifying ratio of 5 to 10 <i>times</i> ), and it to be verified that there are no sectional cracks. However, those with a length of less than 0.5 <i>mm</i> may be ignored.		Sectional cracks	For the three sectional faces of welds excluding craters, root cracks and toe cracks are to be inspected with a magnifying glass (magnifying ratio of 5 to 10 <i>times</i> ), and it to be verified that there are no sectional cracks. However, those with a length of less than 0.5 <i>mm</i> may be ignored.			
Hardness test	Hardness distribution at positions specified in Fig. M4.3.1-27, Part M of the Rules in addition to those specified in 6.2.13, Part M of the Rules is to be measured. However, the measured hardness values are to be for reference only.		Hardness test	Hardness distribution at positions specified in Fig. M4.3.1-2 in addition to those specified in 6.2.13, Part M of the Rules is to be measured. However, the measured hardness values are to be for reference only.			

## Guidance for the survey and construction of steel ships Part M M6 M6.1.3-2

Correction	Present	Note
2 The treatment of 6.1.3-8, Part M of the Rules is to be	2 The treatment of 6.1.3-8, Part M of the Rules is to be	Reference correction
in accordance with Table M6.1.3-1 of this guidance and	in accordance with Table M6.1.3-1 and Table M5.10.	
Table M5.10, Part M of the Rules.		

## Guidance for the survey and construction of steel ships Part M M8 M8.4.2-2

Correction	Present	Note
2 Where ultrasonic tests are accepted instead of	2 Where ultrasonic tests are accepted instead of	Reference correction
radiographic tests according to the requirements of 8.1.2-5,	radiographic tests according to the requirements of 8.1.2-5, the	
Part M of the Rules, the location of inspection of ultrasonic	location of inspection of ultrasonic testing are to comply with	
testing are to comply with the following requirements;	the following requirements;	
(1) For strength deck, side shell plating, bottom shell	(1) For strength deck, side shell plating, bottom shell	
plating and hatch side coaming (including the top	plating and hatch side coaming (including the top	
plate), although the number of inspections are to be	plate), although the number of inspections are to be	
not more than the half number of inspections specified	not more than the half number of inspections specified	
in Table M8.1.1-1, the locations of inspection are to	in Table M8.1.1-1, the locations of inspection are to	
be approved by the Surveyor. However, the	be approved by the Surveyor. However, the	
intersections of butt welds are to be excluded.	intersections of butt welds are to be excluded.	
(2) For structural members except for strength deck, side	(2) For structural members except for strength deck, side	
shell plating and bottom shell plating, the locations of	shell plating and bottom shell plating, the locations of	
inspection may be all the locations specified in Table	inspection may be all the locations specified in Table	
M8.1.1-1. However, the intersections of the weld	M8.1.1-1. However, the intersections of the weld	
lines of plate members are to be excluded.	lines of plate members are to be excluded.	

## Guidance for the survey and construction of steel ships Part N N5 N5.9.3-1

Correction	Present	Note
1 For the purpose of 5.9.3, Part N of the Rules, the radiographic testing method and the judgement for acceptance are to conform to the requirements in D11.6.5-2 and -3-of D11.6.5.	radiographic testing method and the judgement for acceptance	Wording correction

## Guidance for the survey and construction of steel ships Part N N5 N5.9.3-3

Correction	Present	Note
3 The "other non-destructive tests" referred to in	3 The "other non-destructive tests" referred to in	Wording correction
5.9.3(3), Part N of the Rules means, depending upon the use	5.9.3(3), Part N of the Rules means, depending upon the use	
of the pipe, magnetic particle testing or liquid penetrant	of the pipe, magnetic particle testing or liquid penetrant	
testing, and the testing procedures are to conform to the	testing, and the testing procedures are to conform to the	
requirements in <u>D11.4.6</u> -3 and -4-of D11.4.6.	requirements in -3 and -4 of D11.4.6.	

# Guidance for the survey and construction of steel ships Part N N5 N5.11.5-1

Correction	Present	Note
1 For the purpose of 5.11.5, Part N of the Rules, the	1 For the purpose of 5.11.5, Part N of the Rules, the	Reference correction
calculation conditions and allowable stress in the stress	calculation conditions and allowable stress in the stress	
analysis are to be standardized in accordance with the	analysis are to be standardized in accordance with the	
following requirements (1) to (5):	following requirements (1) to (5):	
(1) As the temperature condition, a state uniformly	(1) As the temperature condition, a state uniformly	
cooled down to the design temperature is to be	cooled down to the design temperature is to be	
considered. As the reference temperature (thermal	considered. As the reference temperature (thermal	
stress = 0), $15^{\circ}$ C is to be regarded as standard.	stress = 0), $15^{\circ}$ C is to be regarded as standard.	
(2) Loading conditions are to be in accordance with the	(2) Loading conditions are to be in accordance with the	
following requirements (a) to (d):	following requirements (a) to (d):	
(a) As the internal pressure, the design pressure	(a) As the internal pressure, the design pressure	
specified in the requirements in 5.2 <u>4</u> .4 <u>2</u> , Part N	specified in the requirements in 5.2.4, Part N of	
of the Rules is to be considered.	the Rules is to be considered.	
(b) The self-weight of pipelines, when it cannot be	(b) The self-weight of pipelines, when it cannot be	
neglected, is to be considered including its acceleration.	neglected, is to be considered including its acceleration.	
(c) As the forced displacement, the forced strains	(c) As the forced displacement, the forced strains	
corresponding to the allowable sagging moment	corresponding to the allowable sagging moment	
and hogging moment for the hull are to be	and hogging moment for the hull are to be	
considered.	considered.	
(d) As the thermal load, one which can be determined	(d) As the thermal load, one which can be determined	
according to the condition indicated in the (1)	according to the condition indicated in the (1)	
above is to be considered.	above is to be considered.	
(3) Support conditions are to be as deemed appropriate	(3) Support conditions are to be as deemed appropriate	
by the Society depending upon the construction,	by the Society depending upon the construction,	
arrangement and the materials used for pipe supports.	arrangement and the materials used for pipe supports.	
(4) Allowable stresses are to be as deemed appropriate by	(4) Allowable stresses are to be as deemed appropriate by	
the Society depending upon the calculation method	the Society depending upon the calculation method	
and materials used for pipelines.	and materials used for pipelines.	
(5) Insulation materials are to be considered to give no	(5) Insulation materials are to be considered to give no	
contribution at all to the strength of the pipeline.	contribution at all to the strength of the pipeline.	

# Guidance for the survey and construction of steel ships Part N N5 N5.12.1-1

Correction	Present	Note
1 For the purpose of 5.12.1, Part N of the Rules, the materials used for piping, valves and fittings are to comply with the relevant requirements in Chapter 6, Part N of the	<b>1</b> For the purpose of <b>5.12.1</b> , <b>Part N of the Rules</b> , the materials used for piping, valves and fittings are to comply with the relevant requirements in <b>Chapter 6</b> , <b>Part N of the</b>	Wording correction
<b>Rules</b> , and at the same time, to conform to the relevant	<b>Rules</b> , and at the same time, to conform to the relevant	
requirements in <b>Part K of the Rules</b> . However, for materials		
used for the piping specified in the following (1) to (5), those	used for the piping specified in the following (1) to (5), those	
conforming to JIS or other standards deemed appropriate by	conforming to JIS or other standards deemed appropriate by	
the Society may be used where they comply with the	the Society may be used where they comply with the	
requirements in Chapter 6, Part N of the Rules.	requirements in Chapter 6, Part N of the Rules.	
(1) Pipes, valves and pipe fittings used for cargo piping	(1) Pipes, valves and pipe fittings used for cargo piping	
and process piping with design pressures not		
exceeding 1 MPa and design temperatures of 0°C or		
more.	more.	
(2) Valves and pipe fittings used for cargo piping and		
process piping with design pressures not exceeding		
3 <i>MPa</i> and design temperatures of 0°C or more as well as nominal diameters less than 100 <i>A</i> .	3 <i>MPa</i> and design temperatures of 0°C or more as well as nominal diameters less than 100 <i>A</i> .	
(3) Pipes, valves and pipe fittings used for accessory	<ul><li>(3) Pipes, valves and pipe fittings used for accessory</li></ul>	
piping or instrumentation piping with diameters not		
exceeding 25 mm irrespective of design pressure and		
design temperature.	design temperature.	
(4) Open-ended pipes provided inside and outside cargo	0 1	
tanks, excluding membrane and semi-membrane		
tanks, with design temperatures of -55°C or higher.	tanks, with design temperatures of -55°C or higher.	
(5) Pipe joints of a butt welded type and pipe joints of a	(5) Pipe joints of a butt welded type and pipe joints of a	
slip-on sleeve welded type (such as elbows, reducers,	1 71	
tees, bends and sockets, etc.) for which hot forming		
or heat treatment is carried out during their	6	
manufacturing process in accordance with the	01	
requirements in D12.6.1(1)(a)ii), Part D of the	1	
<b>Rules</b> Guidance on the condition that they receive	· 11	
approval of use from Society in accordance with	from Society in accordance with Chapter 12, Part 6	

Chapter 12, Part 6 of the Guidance for the	of the Guidance for the Approval and Type	
Approval and Type Approval of Materials and	Approval of Materials and Equipment for Marine	
Equipment for Marine Use.	Use.	

# Guidance for the survey and construction of steel ships Part N N13 N13.6.4

Correction	Present	Note
Two oxygen sensors are to be positioned at appropriate	Two oxygen sensors are to be positioned at appropriate	Wording correction
locations in the space or spaces containing the inert gas	locations in the space or spaces containing the inert gas	
system, in accordance with Annex 1 "Guidance for	system, in accordance with Annex 1 "Guidance for	
Equipment and Fittings of Ships Carrying Liquefied Gases in	Equipment and Fittings of Ships Carrying Liquefied	
Bulk" and paragraph 15.2.2.4.5.4 of the <i>FSS Code</i> , for all gas	Gases in Bulk" and paragraph 15.2.2.4.5.4 of the FSS Code,	
carriers, irrespective of the carriage of cargo indicated by an	for all gas carriers, irrespective of the carriage of cargo	
"A" in column "f" of Table N19.1, Part N of the Rules.	indicated by an "A" in column "f" of Table N19.1.	

# Guidance for the survey and construction of steel ships Part N N16 N16.7.1-2

Correction	Present	Note
2 A suitable pressure relief system is to be provided for	2 A suitable pressure relief system is to be provided for	Wording correction
air inlet manifolds, scavenge spaces and exhaust systems	air inlet manifolds, scavenge spaces and exhaust systems	there are a second s
which are not designed to accommodate the worst-case	which are not designed to accommodate the worst-case	
overpressure due to ignited gas leaks or justified by the safety	overpressure due to ignited gas leaks or justified by the safety	
concept of the engine. Pressure relief systems provided for air	concept of the engine. Pressure relief systems provided for air	
inlet manifolds, scavenge spaces and for exhaust gas	inlet manifolds, scavenge spaces and for exhaust gas	
manifolds composing exhaust systems are to be approved by	manifolds composing exhaust systems are to be approved by	
the Society in accordance with Chapter <u>613</u> , Part <u>136</u> of the	the Society in accordance with Chapter 6, Part 13 of the	
Guidance for the Approval and Type Approval of	Guidance for the Approval and Type Approval of	
Materials and Equipment for Marine Use. A detailed	Materials and Equipment for Marine Use. A detailed	
evaluation regarding the hazard potential of overpressure in	evaluation regarding the hazard potential of overpressure in	
air inlet manifolds, scavenge spaces and exhaust systems is to	air inlet manifolds, scavenge spaces and exhaust systems is to	
be carried out and reflected in the safety concept of the engine.	be carried out and reflected in the safety concept of the engine.	
In the case of crankcases, explosion relief valves, as required	In the case of crankcases, explosion relief valves, as required	
in 2.4.3, Part D of the Rules, are considered suitable for the	in 2.4.3, Part D of the Rules, are considered suitable for the	
gas operation of the engine. For engines not covered by 2.4.3,	gas operation of the engine. For engines not covered by 2.4.3,	
Part D of the Rules, a detailed evaluation regarding the	Part D of the Rules, a detailed evaluation regarding the	
hazard potential of fuel gas accumulation in the crankcase is	hazard potential of fuel gas accumulation in the crankcase is	
to be carried out.	to be carried out.	

# Guidance for the survey and construction of steel ships Part N Annex 1 Chapter 2 2.1.1-1

Correction	Present	Note
1 The requirements in this Chapter apply to the	1 The requirements in this Chapter apply to the	Reference correction
displacement type or centrifugal type gas compressors used	displacement type or centrifugal type gas compressors used	
for compression of boil-off gas from the cargo or pressure	for compression of boil-off gas from the cargo or pressure	
transfer in accordance with the requirements in N5.6.2-2 and	transfer in accordance with the requirements in N5.6.2-2 and	
N7.3.1-12(1)(b)vii) of the Guidance.	N7.3.1-1(1)(b)vii) of the Guidance.	

#### Guidance for the survey and construction of steel ships Part N Annex 1 Chapter 4 4.1.1-1

Correction	Present	Note
The requirements in this Chapter apply to heat	The requirements in this Chapter apply to heat	Reference correction
exchangers used for the heating, evaporation or cooling of	exchangers used for the heating, evaporation or cooling of	
cargo liquid or vapour in accordance with the requirements in	cargo liquid or vapour in accordance with the requirements in	
N7.3.1-2 <del>(1)(b)vii)</del> of the Guidance.	N7.3.1-2(1)(b)vii) of the Guidance.	

### Guidance for the survey and construction of steel ships Part N Annex 1 Chapter 8 8.5.1

Correction	Present	Note
The inert gas storage system is to be subjected to the	The inert gas storage system is to be subjected to the	Reference correction
tests specified in 8.3.1-1 and -2, 8.4.1-1(1) and (2), and 8.4.8,	tests specified in 8.3.1-1 and -2, 8.4.1-1(1) and (2), and 8.4.8,	
and in addition to the requirements in 8.2.5 in a corresponding	and in addition to the requirements in 8.2.5 in a corresponding	
manner.	manner.	

#### Guidance for the survey and construction of steel ships Part N Annex 1 Chapter 12 12.1.1-1

Correction	Present	Note
1 The requirements in this Chapter apply to the	1 The requirements in this Chapter apply to the	Reference correction
insulation materials used in the cargo containment systems in	insulation materials used in the cargo containment systems in	
accordance with the requirements in N4.19.3-3(1) of the	accordance with the requirements in N4.19.3-3(1) of the	
Guidance.	Guidance.	

# Guidance for the survey and construction of steel ships Part N Annex 1 Chapter 12 Table 12.1

	Correction		Present		Note
	Tabl	e 12.1 Test Items f	for Insulation Materials		Wording correction
No.	Test item	Procedure of test			wording correction
1	Compatibility with the cargo	Tensile, compression, shearing, bending test after dipping in the cargo (DIN 53428)			
2	Solubility in the cargo	Changes in the size and weight of test specimen before and after dipping in the cargo			
3	Absorption of the cargo				
4	Shrinkage	ISO 2796, ASTM D 212	6		
5	Aging				
6	Closed cell content	ISO 4590, ASTM D 622	6		
7	Density	ISO 845, ASTM D 1622			
8	Mechanical properties <ul> <li>Bending strength</li> <li>Compression strength</li> <li>Tensile strength</li> </ul>	ASTM D 695, ASTM D	1621		
	<ul> <li>Shearing strength</li> </ul>	ISO 1922, ASTM C 273			
9	Thermal expansion	ASTM D 696, ASTM E	831		
10		-			
11	Cohesion	ASTM D 1623			
12	Thermal conductivity		ASTM C 177, ASTM C 518		
13	Resistance to vibration	ISO 10055			
14	Resistance to fire and flame spread	JIS A 9511, DIN 4102			
15	Resistance to fatigue failure and crack propagation	_			
dent fo <u>Note</u> Of t	e: hose test items given above, neces	are to be dealt with for a sary items are to be select	Il the insulation systems. See N4.19.3-4 to -7.	<del>test items 4, 6 (for</del>	
	· •	ent foam material only), 7	7, 8, 12 and 14 are to be dealt with for all the insulation systems.		
	1           2           3           4           5           6           7           8           9           10           11           12           13           14           15           e test in           ident for           Note           Of tileast	No.       Test item         1       Compatibility with the cargo         2       Solubility in the cargo         3       Absorption of the cargo         4       Shrinkage         5       Aging         6       Closed cell content         7       Density         8       Mechanical properties • Bending strength • Compression strength • Tensile strength • Shearing strength         9       Thermal expansion         10       Abrasion         11       Cohesion         12       Thermal conductivity         13       Resistance to vibration         14       Resistance to fire and flame spread         15       Resistance to fatigue failure and crack propagation         e test items given above, necessary itemsident foam material only), 7, 8, 12 and 14	Table 12.1 Test Items f         No.       Test item       Procedure of test         1       Compatibility with the cargo       Tensile, compression, si         2       Solubility in the cargo       Changes in the size and (DIN 53428)         3       Absorption of the cargo       Comparison of weight of after dipping in the cargo         4       Shrinkage       ISO 2796, ASTM D 212         5       Aging       —         6       Closed cell content       ISO 4590, ASTM D 622         7       Density       ISO 4590, ASTM D 1622         8       Mechanical properties       .         • Bending strength       ISO 1209, ASTM C 203         • Compression strength       ISO 1926, EN 1607, AS         • Tensile strength       ISO 1922, ASTM C 273         9       Thermal expansion       ASTM D 695, ASTM D 623         10       Abrasion       —         11       Cohesion       ASTM D 1623         12       Thermal conductivity       ISO 8302, JIS A 1412, A         13       Resistance to fire and flame spread       JIS A 9511, DIN 4102         15       Resistance to fatigue failure and crack propagation       —         15       Resistance to fatigue failure and crack propagation       —	Table 12.1 Test Items for Insulation Materials           No.         Test item         Procedure of test           1         Compatibility with the cargo         Tensile, compression, shearing, bending test after dipping in the cargo (DIN 53428)           2         Solubility in the cargo         Changes in the size and weight of test specimen before and after dipping in the cargo (DIN 53428)           3         Absorption of the cargo         Comparison of weight of test specimen or test of water absorbing properties before and after dipping in the cargo (DIN 53428)           4         Shrinkage         ISO 2796, ASTM D 2126           5         Aging         -           6         Closed cell content         ISO 4590, ASTM D 6226           7         Density         ISO 4590, ASTM D 1622           8         Mechanical properties         -           • Bending strength         ISO 1200, ASTM C 203, ASTM D 1621           • Tensile strength         ISO 1202, ASTM C 273           9         Thermal expansion         ASTM D 696, ASTM C 177, ASTM C 518           10         Abasion         -           11         Cohesion         ASTM D 1623           12         Thermal expansion         ISO 1302, JIS A 1412, ASTM C 177, ASTM C 518           13         Resistance to vibration         ISO 10055 <t< td=""><td>Table 12.1 Test Items for Insulation Materials         No.       Test item       Procedure of test         1       Compatibility with the cargo       Tensile, compression, shearing, bending test after dipping in the cargo (DIN 53428)         2       Solubility in the cargo       Changes in the size and weight of test specimen before and after dipping in the cargo (DIN 53428)         3       Absorption of the cargo       Comparison of weight of test specimen or test of water absorbing properties before and after dipping in the cargo (DIN 53428)         4       Shrinkage       ISO 2796, ASTM D 2126         5       Aging       —         6       Closed cell content       ISO 4590, ASTM D 6226         7       Density       ISO 845, ASTM D 1622         8       Mechanical properties       .         • Bending strength       ISO 1209, ASTM C 203, ASTM D 1623         • Compression strength       ISO 1206, ASTM D 636, ASTM D 1623         • Thermal expansion       —         10       Abrasion       —         11       Cohesion       —         12       Thermal expansion       MSTM D 666, ASTM E 831         10       Abrasion       —         11       Cohesion       ISO 10055         12       Thermal conductivity       ISO 8302, JIS A 1</td></t<>	Table 12.1 Test Items for Insulation Materials         No.       Test item       Procedure of test         1       Compatibility with the cargo       Tensile, compression, shearing, bending test after dipping in the cargo (DIN 53428)         2       Solubility in the cargo       Changes in the size and weight of test specimen before and after dipping in the cargo (DIN 53428)         3       Absorption of the cargo       Comparison of weight of test specimen or test of water absorbing properties before and after dipping in the cargo (DIN 53428)         4       Shrinkage       ISO 2796, ASTM D 2126         5       Aging       —         6       Closed cell content       ISO 4590, ASTM D 6226         7       Density       ISO 845, ASTM D 1622         8       Mechanical properties       .         • Bending strength       ISO 1209, ASTM C 203, ASTM D 1623         • Compression strength       ISO 1206, ASTM D 636, ASTM D 1623         • Thermal expansion       —         10       Abrasion       —         11       Cohesion       —         12       Thermal expansion       MSTM D 666, ASTM E 831         10       Abrasion       —         11       Cohesion       ISO 10055         12       Thermal conductivity       ISO 8302, JIS A 1

### Guidance for the survey and construction of steel ships Part N Annex 1 Chapter 14 14.1.1

Correction	Present	Note
The requirements in this Chapter apply to the fixed	The requirements in this Chapter apply to the fixed	Wording correction
type and portable type oxygen content measuring equipment	type and portable type oxygen content measuring equipment	wording correction
used to verify that the oxygen content is less than the	used to verify that the oxygen content is less than the	
controlled value in accordance with the requirements in	controlled value in accordance with the requirements in	
N13.6.20- of the Guidance.	N13.6.20.	

### Guidance for the survey and construction of steel ships Part N Annex 1 Chapter 15 15.1.1

Correction	Present	Note
The requirements in this Chapter apply to the fixed	The requirements in this Chapter apply to the fixed	Wording correction
type and portable type humidity measuring equipment used	type and portable type humidity measuring equipment used	
for the purpose of verifying that the humidity is less than the	for the purpose of verifying that the humidity is less than the	
controlled value in accordance with the requirements in	controlled value in accordance with the requirements in	
N9.2.2 <del>(3)(b). of the Guidance.</del>	N9.2.2(3)(b).	

### Guidance for the survey and construction of steel ships Part N Annex 1 Chapter 17 17.1.1

Correction	Present	Note
The requirements in this Chapter apply to the water spray system in accordance with the requirements in N11.3.2(2). of the Guidance.	The requirements in this Chapter apply to the water spray system in accordance with the requirements in N11.3.2(2).	Wording correction

### Guidance for the survey and construction of steel ships Part N Annex 1 Chapter 18 18.1.1

	Correction	Present	Note
	The requirements in this Chapter apply to the fixed	The requirements in this Chapter apply to the fixed	Wording correction
nitrog	en gas fire-extinguishing systems in accordance with the	nitrogen gas fire-extinguishing systems in accordance with	wording correction
requir	ements in N11.5.2- of the Guidance.	the requirements in N11.5.2.	

# Guidance for the survey and construction of steel ships Part N Annex 1 Chapter 19 19.1.1

Correction	Present	Note
The requirements in this Chapter apply to the fixed or	1 1 1 1	Reference correction
portable mechanical ventilation systems provided in the gas-	portable mechanical ventilation systems provided in the gas-	
dangerous areas and cargo motor rooms in accordance with	dangerous areas and cargo motor rooms in accordance with	
the requirements in N12.1.7(1) and N12.2.1.— of the	the requirements in N12.1.7(1) and N12.2.1.	
Guidance.		

# Guidance for the survey and construction of steel ships Part N Annex 1 Chapter 20 20.1.1

Correction	Present	Note
The requirements in this Chapter apply to cargo hoses		Wording correction
for cargo transfer in accordance with the requirements in	for cargo transfer in accordance with the requirements in	working correction
N5.11.7- of the Guidance.	N5.11.7.	

# Guidance for the survey and construction of steel ships Part N Annex 2A Chapter 1 1.3

Correction	Present	Note
The plans and documents to be submitted are as follows. (1) Plans and documents for approval	<ul><li>The plans and documents to be submitted are as follows.</li><li>(1) Plans and documents for approval</li></ul>	Wording correction
(a) General arrangement	(a) General arrangement	
(b) Items specified in 18.1.3(1), (3 <del>) and,</del> ), (5) and (6),	(b) Items specified in 18.1.3(1), (3) and, (5) and (6),	
Part D of the Rules	Part D of the Rules	
(c) Operating instructions for the automatic control	(c) Operating instructions for the automatic control	
devices and remote control devices (including	devices and remote control devices (including	
sequential control, combustion control and safety	sequential control, combustion control and safety	
devices).	devices).	
(d) Diagrams for automatic combustion control	(d) Diagrams for automatic combustion control	
devices of GCU	devices of GCU	
(e) Gas fuel burning devices	(e) Gas fuel burning devices	
(f) Gas leak protection devices for connections	(f) Gas leak protection devices for connections	
between GCUs and gas fuel supply piping	between GCUs and gas fuel supply piping	
systems	systems	
(g) Gas fuel supply piping systems (including details	(g) Gas fuel supply piping systems (including details	
of valves and pipe fittings) and devices to protect	of valves and pipe fittings) and devices to protect	
surrounding areas, etc. from gas leakages (h) Automatic control and remote control systems for	surrounding areas, etc. from gas leakages (h) Automatic control and remote control systems for	
gas fuel supply systems	gas fuel supply systems	
(i) Prototype test plans for gas fuel burning devices	(i) Prototype test plans for gas fuel burning devices	
and test results	and test results	
(j) Onboard test plans	(j) Onboard test plans	
(k) Test plans of gas trials specified in 4.20.3, Part	(k) Test plans of gas trials specified in 4.20.3, Part	
N of the Rules	N of the Rules	
(l) Other drawings and data deemed necessary by	(1) Other drawings and data deemed necessary by	
the Society depending upon the type of $GCU$	the Society depending upon the type of $GCU$	
(2) Plans and documents for reference	(2) Plans and documents for reference	
(a) Instruction manuals (including guidance for	(a) Instruction manuals (including guidance for	
onboard maintenance, inspection and overhaul)	onboard maintenance, inspection and overhaul)	
(b) Other drawings and data deemed necessary by	(b) Other drawings and data deemed necessary by	
the Society	the Society	

# Guidance for the survey and construction of steel ships Part N Annex 5 Chapter 2 2.2

Correction	Present	Note
The following procedures will demonstrate the adequacy of a tank vent system to limit the pressure rise in a cargo tank to not greater than 120% of <i>MARVS</i> during all conditions, including fire conditions implicit in 8.4 <sub>5.</sub> 1. Part N of the <b>Rules</b> .	The following procedures will demonstrate the adequacy a tank vent system to limit the pressure rise in a cargo tank not greater than 120% of <i>MARVS</i> during all condition including fire conditions implicit in <b>8.4,1 Part N of the Rul</b>	to is,
<ul> <li>(1) Prepare a simplified flow sheet of the cargo tank vent system, identifying the fittings and the actual diameters and lengths of pipe. (<i>See</i> Fig. 1) Divide the system into sections between nodes at changes in pipe diameter and at interconnections with flows from other relief valves. List the fittings and their dynamic loss coefficients. Calculate the external surface area of the piping sections between the nodes. (<i>See</i> Table 2)</li> <li>(2) Calculate the <i>PRV</i> capacity (<i>Q<sub>GCC</sub></i>) of each tank <i>PRV</i>, in <i>m<sup>3</sup>/s</i> of air at standard conditions in accordance with 8.4.1, Part N of the Rules and note the installed rated capacity (<i>Q<sub>IR</sub></i>) of each <i>PRV</i> in <i>m<sup>3</sup>/s</i> air at standard conditions at 120% of <i>MARVS</i>. The calculation should be done for the highest gas factor of the products included in the cargo list. Determine the mass flows for cargo conditions at 120% of <i>MARVS</i> through each <i>PRV</i> for the <i>PRV</i> capacity and for the installed rated capacity for both all vapour flow and for two-phase cargo flow. Also calculate the mass flow at <i>MARVS</i> for the installed rated capacity on all vapour flow. Equation (1) may be used for all vapour flow pressure drop at 120% of</li> </ul>	<ol> <li>Prepare a simplified flow sheet of the cargo tank versions, identifying the fittings and the actualiameters and lengths of pipe. (<i>See</i> Fig. 1) Divide the system into sections between nodes at changes in pidiameter and at interconnections with flows from other relief valves. List the fittings and their dynamic loss coefficients. Calculate the external surface are of the piping sections between the nodes. (<i>See</i> Table 2)</li> <li>Calculate the <i>PRV</i> capacity (<i>Q<sub>GCC</sub></i>) of each tank <i>PR</i> in <i>m<sup>3</sup>/s</i> of air at standard conditions in accordant with 8.4.1, Part N of the Rules and note the install rated capacity (<i>Q<sub>IR</sub></i>) of each <i>PRV</i> in <i>m<sup>3</sup>/s</i> air standard conditions at 120% of <i>MARVS</i>. The calculation should be done for the highest gas fact of the products included in the cargo list. Determine the mass flows for cargo conditions 120% of <i>MARVS</i> through each <i>PRV</i> for the <i>PR</i> capacity and for the installed rated capacity for bot all vapour flow and for two-phase cargo flow. All calculate the mass flow at <i>MARVS</i> for the install rated capacity on all vapour flow. Equation (1) m be used for all vapour flow pressure drop at 120%.</li> </ol>	the period of t
(3) Estimate all the vapour now pressure drop at 120% of $MARVS$ in the pipe from the cargo tank connection to the <i>PRV</i> inlet flange, working from the known tank	(5) Estimate an the vapour now pressure drop at $120\%$ MARVS in the pipe from the cargo tank connection the <i>PRV</i> inlet flange, working from the known ta	to

	pressure towards the PRV. This pressure drop is		pressure towards the PRV. This pressure drop is	
	calculated by using the difference in stagnation		calculated by using the difference in stagnation	
	pressures. Therefore, the second term of equation (5)		pressures. Therefore, the second term of equation (5)	
	may be used for pipe sections of constant diameter.		may be used for pipe sections of constant diameter.	
	For contractions, equation $(5.1)$ may be used.		For contractions, equation $(5.1)$ may be used.	
(4)	Check that the pressure drop at each <i>PRV</i> inlet	(4)	Check that the pressure drop at each PRV inlet	
	complies with 2.1-3(1) at the <i>PRV</i> capacity for all		complies with <b>2.1-3(1)</b> at the <i>PRV</i> capacity for all	
	vapour flow to assure adequate relief capacity. For		vapour flow to assure adequate relief capacity. For	
	the calculation, the vapour mass flow of product $(W_q)$		the calculation, the vapour mass flow of product $(W_a)$	
	from equation (1) should be used.		from equation (1) should be used.	
(5)	Estimate the two-phase flow pressure in the discharge	(5)	Estimate the two-phase flow pressure in the discharge	
	pipe at the location of discharge to the atmosphere.		pipe at the location of discharge to the atmosphere.	
	Equation (6) may be used, with the <i>PRV</i> two-phase		Equation (6) may be used, with the <i>PRV</i> two-phase	
	mass flow $(W', equation (4))$ to assure adequate relief		mass flow $(W', equation (4))$ to assure adequate relief	
	capacity, to check if the exit pressure is greater than 1		capacity, to check if the exit pressure is greater than 1	
	bar a.		bar a.	
(6)	Estimate the vapour fraction and two-phase density	(6)	Estimate the vapour fraction and two-phase density	l
	in the vent pipe at the exit to the atmosphere,		in the vent pipe at the exit to the atmosphere,	l
	assuming transfer of the fire heat flux of 108 $kW/m^2$		assuming transfer of the fire heat flux of 108 $kW/m^2$	
	through the uninsulated vent piping. (See 2.3-7, the		through the uninsulated vent piping. (See 2.3-7, the	l
	same being referred to hereinafter) Equations (7) and		same being referred to hereinafter) Equations (7) and	
	(8) may be used.		(8) may be used.	
(7)	Estimate the built-up back pressure at the PRV outlet	(7)	Estimate the built-up back pressure at the <i>PRV</i> outlet	
	flange, commencing from the known vent pipe exit		flange, commencing from the known vent pipe exit	
	pressure, calculating the pressure drop between pipe		pressure, calculating the pressure drop between pipe	
	nodes and working, section by section, back up the		nodes and working, section by section, back up the	
	pipe to the <i>PRV</i> .		pipe to the <i>PRV</i> .	
	Equations (7), (8), (9) and (5) may be used with		Equations (7), (8), (9) and (5) may be used with	l
	iteration until the upstream node absolute pressure,		iteration until the upstream node absolute pressure,	l
	vapour fraction and specific volume are justified and		vapour fraction and specific volume are justified and	l
	assuming that vapour is saturated.		assuming that vapour is saturated.	l
	At pipe diameter expansion fittings where fluid		At pipe diameter expansion fittings where fluid	l
	velocity is reduced, a pressure recovery generally		velocity is reduced, a pressure recovery generally	l
	occurs. This recovery is overestimated in case of two-		occurs. This recovery is overestimated in case of two-	l

	phase flow when dynamic loss coefficients for single-		phase flow when dynamic loss coefficients for single-	
	phase flow are used. For the purpose of these		phase flow are used. For the purpose of these	
	guidelines, the static exit pressure of a conical		guidelines, the static exit pressure of a conical	
	expansion fitting is assumed to be equal to the static		expansion fitting is assumed to be equal to the static	
	inlet pressure.		inlet pressure.	
(8)	Estimate the choking pressure $(p_{ec})$ at the exit of	(8)	Estimate the choking pressure $(p_{ec})$ at the exit of	
	every section with the mass-flux $(G_p)$ in that section		every section with the mass-flux $(G_p)$ in that section	
	for the pipeline between the <i>PRV</i> and the vent exit.		for the pipeline between the <i>PRV</i> and the vent exit.	
	Equation (6) may be used.		Equation (6) may be used.	
	Compare the pressure distribution along the vent line		Compare the pressure distribution along the vent line	
	as derived from item $2.2(5)$ to $2.2(7)$ , with the		as derived from item 2.2(5) to 2.2(7), with the	
	different choking pressures for each section as		different choking pressures for each section as	
	derived from equation (6). If choking pressure at any		derived from equation (6). If choking pressure at any	
	location exceeds the corresponding calculated		location exceeds the corresponding calculated	
	pressure derived from $2.2(5)$ to $2.2(7)$ , the calculation		pressure derived from 2.2(5) to 2.2(7), the calculation	
	as described in 2.2(5) to 2.2(7) should be repeated		as described in 2.2(5) to 2.2(7) should be repeated	
	commencing from choking point location and		commencing from choking point location and	
	corresponding choking pressure, working back up the		corresponding choking pressure, working back up the	
	pipe to the <i>PRV</i> . If choking pressure at more than one		pipe to the <i>PRV</i> . If choking pressure at more than one	
	location exceeds the corresponding calculated		location exceeds the corresponding calculated	
	pressure derived from 2.2(5) to 2.2(7), the		pressure derived from $2.2(5)$ to $2.2(7)$ , the	
	commencing point of the recalculation should be		commencing point of the recalculation should be	
	taken as the choking location point giving the highest		taken as the choking location point giving the highest	
( <b>0</b> )	built-up back pressure.	( <b>0</b> )	built-up back pressure.	
(9)	Check that the built-up back pressure at each <i>PRV</i>	(9)	Check that the built-up back pressure at each <i>PRV</i>	
	outlet complies with 2.1-4, at the <i>PRV</i> capacity for two phase mass flow $(W'_{12})$ equation (4) at 120% of		outlet complies with <b>2.1-4</b> , at the <i>PRV</i> capacity for two phase mass flow $(W'_{14}, a) = 120\%$ of	
	two-phase mass flow ( $W'$ , equation (4)) at 120% of $MABWS$ to assume stable expection of the values thus		two-phase mass flow ( $W'$ , equation (4)) at 120% of $MABVS$ to accurately a stable expectation of the values thus	
	<i>MARVS</i> , to assure stable operation of the valves, thus		<i>MARVS</i> , to assure stable operation of the valves, thus	
	assuring adequate relief capacity.		assuring adequate relief capacity.	<u>ــــــــــــــــــــــــــــــــــــ</u>

	Correction	Present	Note
	Table 1 Worked Example of	of the Procedure	Reference correction
Applicable provisions	Worked example of the procedure		and
2.2(1)	system has been divided into sections between nodes, ma	nt system with one vent stack connected to two tanks. The rked by capital letters A to N, at changes in pipe diameter at F and J. Table 2 lists the vent pipe lengths and external cal values for Friction Resistance	Wording correction
2.2(2)		f air at standard conditions (STP) of 273° <i>K</i> and 1.013 <i>bar</i> Co Type 95 <i>POPRV</i> s r propane:	

	By equation (4) for two-phase mass flow rate through provided <i>PRV</i>	
	By equation (4) for two-phase mass flow rate through provided $PRV$ At 1.2 • <i>MARVS</i> :	
	$W = 28.25 \cdot 7.71/20.52 = 10.6 \text{ kg/s}$	
2.2(3)	The all vapour capacity and two-phase pressure drops in the pipe from the cargo tank to the <i>PRV</i> inlet are calculated	
	as the difference in stagnation pressures by using the second term of equation (5) for pipe sections of constant	
	diameter and by using equation (5.1) for conical reduction fittings (contractions).	
	(1) For provided <i>PRV</i> all vapour capacity at $1.2 \cdot MARVS$	
	Section N to M:	
	$\Delta p = 0.5 \cdot 665^2 \cdot 0.0330 \cdot 0.528 = 3900 Pa (0.039 bar)$	
	where from Table 2:	
	$G_p = 5.22/\pi \cdot 0.1^2/4 = 665 \ kg/m^2s; 4f \cdot L/D + N = 0.528$	
	$v = 0.0330 m^3/kg$ with incompressible flow assumed	
	Conical reduction fitting M:	
	where $G_p = 5.22/\pi \cdot 0.08^2/4 = 1038 \ kg/m^2 s; N = 0.1$	
	$\Delta p = 0.5 \cdot 1038^2 \cdot 0.0330 \cdot 0.1 = 1800 \ Pa \ (0.018 \ bar)$	
	Section M to PRV:	
	$\Delta p = 0.5 \cdot 1038^2 \cdot 0.0330 \cdot 0.027 = 500 \ Pa \ (0.005 \ bar)$	
	here and from Table 2	
	$G_p = 1038 \ kg/m^2s$ ; $4f \cdot L/D + N = 0.027$	
	Section N to <i>PRV</i> total $\Delta p = 0.039 + 0.018 + 0.005 = 0.06$ bar	
	(2) For installed rated all vapour capacity at MARVS	
	Section N to M:	
	$\Delta p = 0.5 \cdot 1689^2 \cdot 0.0392 \cdot 0.528 = 29500 Pa \ (0.295 \ bar)$	
	here $G_p = 1689 \ kg/m^2 s$ ; $v = 0.0392 \ m^3/kg$ with incompressible flow assumed	
	Conical reduction fitting M:	
	$\Delta p = 0.5 \cdot 2640^2 \cdot 0.0392 \cdot 0.1 = 13700 Pa \ (0.137 \ bar)$	
	here, $G_p = 2640 \ kg/m^2 s$	
	Section M to <i>PRV</i> : $\Delta p = 0.5 \cdot 2640^2 \cdot 0.0392 \cdot 0.027 = 3700Pa (0.037 bar)$	
	here, $G_p = 2640 \ kg/m^2 s$	
	Section N to <i>PRV</i> total $\Delta p = 0.295 + 0.137 + 0.037 = 0.47$ bar	

### Editorial Correction for Technical Rules and Guidance

2.2(4)	Check system compliance with requirements of 2.1-3(1) At divided <i>PRV</i> all vapour capacity at 1.2 · <i>MARVS</i> $\Delta p \cdot 100/p_{MARVS} = 0.06 \cdot 100/11.0 = 0.55\% \le 3\%$ For requirement of 2.1-3(2) At divided <i>PRV</i> two-phase capacity at 1.2 · <i>MARVS</i> $= 0.016 \cdot 100/11.0=0.15\%$ At installed rated all vapour capacity at <i>MARVS</i> $= 0.47 \cdot 100/11.0=4.27\%$ At installed rated two-phase capacity at <i>MARVS</i> $= 0.10 \cdot 100/11.0=0.91\%$	
	$\Delta p_{close} > 0.02 \ p_{MARVS} + \Delta p_{inlet}$ > 0.02 • 11.0 + 0.47 > 0.69 bar For stable operation of the <i>PRV</i> , closing pressure should be less than: 11.0 - 0.69 \le 10.31 \ bar g for a pop-action <i>POPRV</i>	
2.2(5)	The two-phase critical exit choking pressure is estimated, using saturated propane properties at 1.2 • MARVS (14.2 bar a) By equation (6) where $\omega = \frac{466.2 \cdot 2931 \cdot 314 \cdot 1420000 \cdot (0.0330 - 0.0021)^2}{(832800 - 52400)^2} = 6.09$ and where W' for Code discharge from four PRVs	
	$= 10.6 \cdot 4 = 42.4 \ kg/s \ ; \ D_{exit} = 0.5 \ m \ ; \ G_p = \frac{42.4}{\pi \cdot 0.5^2 / 4} = 215.9 \ kg/m^2 s$ $p_{ec} = 215.9 \cdot \left[\frac{1420000 \cdot 6.09}{466.2}\right]^{1/2} = 215.9 \cdot 136.2 = 29400 \ Pa \ (0.29 \ bar \ a)$ Thus the exit flow is not choked and the vent pipe exit pressure is 100000 Pa (1 \ bar \ a)	
2.2(6)	The exit vapour fraction, $x_e$ , assuming a fire exposure heat flux of 108 kW/m <sup>2</sup> into uninsulated vent discharge piping at the Code rated two-phase flow rate, is estimated. By equation (7) and from Table2Table 2: $\sum \frac{a}{W} = \frac{27.86+4.50}{42.4} + \frac{1.81}{21.2} + \frac{1.72}{10.6} = 1.011 \ m^{2}s/kg$ and $x_e = \frac{524200-320300+108000\cdot1.011}{425200} = 0.74$ By equation (8) and (9)	
	$\rho_e = 3.14 \ kg/m^2$ and $\nu_e = 0.319 \ m^2 s/kg$	

	2.2(7)	The pressure drops between the vent discharge piping nodes are estimated by equation (5), with iteration until the		
	2.2(8)	upstream node absolute pressure, vapour fraction and specific volume are justified, and working section by section		
	2.2(9)	back up the pipe to the <i>PRV</i> .		
		Section BA		
		Section B to A and from Table2Table 2:		
		$G_p = 4 \cdot 10.6/\pi \cdot 0.5^2/4 = 215.9 \ kg/m^2s$		
		By first approximation		
		$\Delta p = 0.5 \cdot 215.9^2 \cdot 0.319 \cdot 2.313 = 17200 Pa (0.17 bar)$		
		Try $p_B = 1.18 \ bar \ a$		
		By equation (7) and from Table2Table 2:		
		$\sum a / W = 27.86/42.4 + 1.81/21.2 + 1.72/10.6 = 0.9048 \ m^2 s / kg$		
		and $x_B = \frac{524200 - 328700 + 108000 \cdot 0.9048}{421600} = 0.70$		
		and $x_B = \frac{421600}{421600} = 0.70$		
		By equation (8) and (9)		
		$\rho_B = 2.73/0.70 = 3.90 \ kg/m^3$ ; $v_B = 0.256 \ m^2 s/kg$		
		By equation (5)		
		$\Delta p = 215.9^2 \cdot (0.319 - 0.256) + 0.5 \cdot 215.9^2 (0.319 + 0.256)/2 \cdot 2.313$		
		= 2900 + 15500 = 18400 Pa (0.18 bar)		
		and $p_B = 1.18 \ bar \ a$		
		By 2.2(8) and $p_{ec}$ at B = 337.3 • 136.2 = 46000 Pa (0.46 bar a) using mass flux at exit from section F to B		
		Section FB		
		Section F to B and from Table2 Table 2:		
		where $G_p = 4 \cdot 10.6/\pi \cdot 0.4^2/4 = 337.3 \ kg/m^2s$		
		By first approximation		
		$\Delta p = 0.5 \cdot 337.3^2 \cdot 0.256 \cdot 1.808 = 26300 \ Pa \ (0.26 \ bar)$		
		By equation (7) and from Table2 Table 2:		
		where $\sum a / W = 1.81/21.2 + 1.72/10.6 = 0.2477 \ m^2 s/kg$		
		and $x_F = \frac{524200 - 343300 + 108000 \cdot 0.2477}{412600} = 0.50$		
		By equation (8) and (9)		
		$\rho_F = 3.45/0.50 = 6.90 \ kg/m^3$ ; $v_F = 0.145 \ m^3/kg$		
		By equation (5)		
		$\Delta p = 337.3^2(0.256 - 0.145) + 0.5 \cdot 337.3^2 (0.256 + 0.1456)/2 \cdot 1.808$		
		= 12600 + 20600 = 33200 Pa (0.33 bar)		
		and $p_F = 1.18 + 0.33 = 1.51$ bar a		
		Section GF		
•			-	•

Section G to F and from Table2 Table 2:	
where $G_p = 2 \cdot 10.6/\pi \cdot 0.4^2/4 = 168.7 \ kg/m^2s$	
By first approximation $\Delta p = 0.5 \cdot 168.7^2 \cdot 0.145 \cdot 1.132 = 2300 Pa (0.02 bar)$	
This pressure drop is too small to justify a more accurate estimation. For the purposes of this calculation, we can	
assume the specific volume remains constant from G to L.	
Section JG	
Section L to J and from Table2Table 2:	
where $G_p = 2 \cdot 10.6/\pi \cdot 0.3^2/4 = 299.9 \ kg/m^2s$	
By first approximation $\Delta p = 0.5 \cdot 299.9^2 \cdot 0.145 \cdot 0.071 = 500 Pa (0.01 bar)$	
Section LJ	
Section L to J and from Table2 Table 2:	
$G_p = 10.6/\pi \cdot 0.3^2/4 = 149.9 \ kg/m^2s$	
By first approximation $\Delta p = 0.5 \cdot 149.9^2 \cdot 0.145 \cdot 0.621 = 1000 Pa (0.01 bar)$	
$p_L = 1.51 + 0.02 + 0.01 + 0.01 = 1.55$ bar a at exit from conical expansion fitting	
By equation (7)	
$x_L = \frac{524200 - 344600 + 0}{415800} = 0.432$	
By equations (8) and (9)	
$\rho_L = 3.54/0.432 = 8.19 \ kg/m^3$ ; $v = 0.122 \ m^2 s/kg$	
Conical expansion fitting at L	
In accordance with procedure 2.2-7, the static inlet pressure to this fitting is assumed to be 1.55 <i>bar a</i> .	
Section PRV - L	
Section PRV and from Table2 Table 2:	
where $G_p = 10.6/\pi \cdot 0.1^2/4 = \overline{1349.9}  kg/m^2 s$	
$p_{ec}$ at exit of pipe section from PRV to L = 1349 • 136.2 = 184000 Pa (1.84 bar a) > 1.55	
Therefore, the exit of the 100 mm diameter pipe section PRV to L is choked and the exit pressure at L is 1.84 bar a.	
By equation (7) at 1.84 <i>bar a</i>	
$x_L = \frac{524200 - 355100 + 0}{411600} = 0.411$	
By equation (8) and (9)	
$\rho_L = 4.18/0.411 = 10.17 \ kg/m^3$ ; $\nu_L = 0.098 \ m^2 s/kg$	
By first approximation $\Delta p = 0.5 \cdot 1349^2 \cdot 0.098 \cdot 0.043 = 3800 \ Pa (0.04 \ bar)$	
$p_{PRV} = 1.84 + 0.04 = 1.88 \ bar \ a$ ; Try 2.42 $bar \ a$	
By equation (7)	

	$x_{PRV} = \frac{524200 - 371800}{403600} = 0.378$
	By equation (8) and (9) $\rho_{PRV} = 5.49/0.378 = 14.52 \ kg/m^3$ ; $v_{PRV} = 0.069 \ m^2s/kg$ By equation (5) $\Delta p = 1349^2 \cdot (0.098 - 0.069) + 0.5 \cdot 1349^2 (0.098 + 0.069)/2 \cdot 0.043$ $= 52800 + 3300 = 56100 \ Pa \ (0.56 \ bar)$ and $p_{PRV} = 1.84 + 0.56 = 2.40 \ bar \ a \ (1.40 \ bar \ g)$ Back pressure at divided <i>PRV</i> two-phase flow at 14.2 \ bar \ a \ is $1.40 \times 100/11.0 = 12.7\%$ of set pressure (gauge) which assures adequate relief capacity for <i>POPRVs</i> .
Summary of predictions	The predicated two-phase propane properties are shown at five node points in the $PRV$ discharge vent piping, in Fig. 2 at the divided $PRV$ flow-rate, and in <u>TableFig.</u> 3 at the installed rated flow-rate. The flowing pressure drop in the
	piping to the <i>PRV</i> inlet is less than 2.1-3. The built-up back pressure at the <i>PRV</i> outlet is also less than 2.1-4 requires for the pilot-operated <i>PRV</i> s installed.

# Guidance for the survey and construction of steel ships Part N Annex 5 Chapter 2 Table 2

		ection					Present		Note
Table 2	List of	Vent Pipe	e Lengths	and Surface Areas	, Fittings ar	nd Dynamic	Loss Co	oefficients	Wording correction
Pipe section	Length (mm)	Pipe diameter ( <i>mm</i> )	Surface area (m <sup>2</sup> )	Fitting	Specification	Dynamic loss coefficients <i>N</i>	Pipe 4 <i>fL/D</i>	$4fL/D + \sum N$	U
А	1,080	500/700	2.04	A= Cowl/vent exit	-	2.25	_	2.25	
A - B	1,565	500	2.46				0.063	0.063	
Section total			4.50					2.313	
B - C	2,650	400	3.331	B= Conical expansion	<i>d/D</i> =0.8	*	0.132	0.132	
C - D	2,546	400	3.20	C= Long radius bend	90°	0.3	0.127	0.427	
D - E	14,880	400	18.71	D= Bend	$45^{\circ}$	0.2	0.744	0.944	
E - F	2,093	400	2.63	E= Bend	$45^{\circ}$	0.2	0.105	0.305	
Section total			27.86						
F - G	642	400	0.81	F= Hard tee	-	1.1	0.032	1.132	
G - J	1,066	300	1.00	G= Conical expansion	<i>d/D</i> =0.75	*	0.071	0.071	
Section total			1.81						
J - K	1,340	300	1.263	J= Soft tee	-	0.3	0.089	0.389	
K - L	481	300	0.453	K= Bend	$45^{\circ}$	0.2	0.032	0.232	
Section total			1.72						
L - PRV	216	300/100		L= Conical expansion	<i>d/D</i> =0.33	*	0.043	0.043	
PRV - M	108	80					0.027	0.027	
М	108	80		M= Conical reduction	<i>d/D</i> =0.8	0.1	-	0.1	
M - N	142	80		N= Square edged inlet	-	0.5	0.028	0.528	
No *:		under procedu	ure 2.2 <del>(_</del> 7 <del>)</del>						

# Guidance for the survey and construction of steel ships Part S S9 S9.1.3-1

Correction	Present	Note
1 The inert gas systems for use in filling and discharging	1 The inert gas systems for use in filling and discharging	
the cargo tanks specified in 9.1.3(1), Part S of the Rules are	the cargo tanks specified in 9.1.3(1), Part S of the Rules are	
to comply with the following requirements, except where the	to comply with the following requirements, except where the	
installation of inert gas system is required by 4.5.5, Part R of	installation of inert gas system is required by 4.5.5, Part R of	
the Rules.	the Rules.	
(1) Inert gas systems using oil fired inert gas generators	(1) Inert gas systems using oil fired inert gas generators	
are to comply with the requirements of R4.5.5-4(3)	are to comply with the requirements of R4.5.5-4(3)	
(2) Inert gas systems using nitrogen generators are to	(2) Inert gas systems using nitrogen generators are to	
comply with the requirements of R4.5.5-4(2).	comply with the requirements of R4.5.5-4(2).	
(3) Inert gas systems using boiler flue gases are to	(3) Inert gas systems using boiler flue gases are to	
comply with the requirements of R4.5.5-4(4), Part	1 2 1	117 1
R of the RulesGuidance.	R of the Rules.	Wording correction

# Guidance for the survey and construction of steel ships Part S S10 S10.1.5-1

Correction	Present	Note
1 The wording "the satisfaction of the Society" in <b>10.1.5</b> ,	1 The wording "the satisfaction of the Society" in <b>10.1.5</b> ,	
Part S of the Rules mean that the explosion-protected	Part S of the Rules mean that the explosion-protected	
electrical equipment complying with the requirements in 2.16,	electrical equipment complying with the requirements in 2.16,	
Part H of the Rules and grouped into appropriate Apparatus	Part H of the Rules and grouped into appropriate Apparatus	
Group and Temperature Class according to the column " <i>i</i> " of	Group and Temperature Class according to the column "i" of	Wording correction
Table S17.1 Part S of the Rules or equivalent thereto for an	Table S17.1 or equivalent thereto for an environmental gas or	8
environmental gas or vapours condition.	vapours condition.	

### Guidance for the survey and construction of steel ships Part S S11 S11.4.1-2

Correction	Present	Note
2 The capacity of fire extinguishing agent of dry	2 The capacity of fire extinguishing agent of dry	
chemical fire extinguishers is to be the greater or more of the	chemical fire extinguishers is to be the greater or more of the	
following capacities:	following capacities:	
(1) The capacity required in <i>MSC</i> .1/ <i>Circ</i> .1315/ <u>Rev.1</u>	(1) The capacity required in <i>MSC</i> .1/ <i>Circ</i> .1315 referred to	Wording correction
referred to in N11.4.1	in <b>N11.4.1</b>	
(2) 1.5 $kg/m^2$ of the total deck area of the cargo tanks	(2) 1.5 $kg/m^2$ of the total deck area of the cargo tanks	
which are expected to carry simultaneously the cargo	which are expected to carry simultaneously the cargo	
for which the fire extinguishing equipment is	for which the fire extinguishing equipment is	
required. For other requirements for installations, the	required. For other requirements for installations, the	
requirements in 11.4, Part N of the Rules apply	requirements in 11.4, Part N of the Rules apply	
correspondingly.	correspondingly.	

### Guidance for the survey and construction of steel ships Part S S12 S12.2.4

Correction	Present	Note
The ventilation ducts in cargo pump room are to be provided	The ventilation ducts in cargo pump room are to be provided	
at the upper part of cargo pump room, and in addition, to be	at the upper part of cargo pump room, and in addition, to be	
arranged in compliance with the requirements in R4.5.4-1(1),	arranged in compliance with the requirements in R4.5.4-1(1),	
Part R of the <u>RulesGuidance</u> . Further, the suction openings	Part R of the Rules. Further, the suction openings are to be	Wording correction
are to be arranged as far apart as practicable from each other,	arranged as far apart as practicable from each other, for	
for instance on a diagonal line of cargo pump room, in	instance on a diagonal line of cargo pump room, in	
consideration of the vapour density of the cargo and air	consideration of the vapour density of the cargo and air	
intaking efficiency.	intaking efficiency.	

# Guidance for the survey and construction of steel ships Part S S13 S13.3.1

Correction	Present	Note
The wording "the requirements otherwise specified" in	The wording "the requirements otherwise specified" in	
13.3.1, Part S of the Rules means those specified in R4.5.10-	13.3.1, Part S of the Rules means those specified in R4.5.10-	XX7 1· · ·
2(1 <del>), Part R.</del> ).	2(1), Part R.	Wording correction

# Guidance for the survey and construction of steel ships Part S S14 S14.1.2

Correction	Present	Note
The protective equipment used to handle the cargo to which	The protective equipment used to handle the cargo to which	
the requirements in this Part apply for once or more are, as a	the requirements in this Part apply for once or more are, as a	
rule, to be stored in the lockers provided within the cargo area.	rule, to be stored in the lockers provided within the cargo area.	
One set of these is , to be stored in the locker near the cargo	One set of these is, to be stored in the locker near the cargo	
pump room at all times. The construction of the special locker	pump room at all times. The construction of the special locker	
for the storage of protective equipment provided in the cargo	for the storage of protective equipment provided in the cargo	Defense as serves the
area is to comply with the requirement in Chapter 1911.3.3,	area is to comply with the requirement in Chapter 19, Part C	Reference correction
Part 1, Part C of the Rules. When this can not be complied	of the Rules. When this can not be complied with under	
with under avoidable reasons, protective equipment may be	avoidable reasons, protective equipment may be stored in the	
stored in the store or locker having no openings to	store or locker having no openings to accommodation space	
accommodation space and service space and located outside	and service space and located outside the cargo area as shown	
the cargo area as shown in Fig. S14.1.2-1. This requirement	in Fig. S14.1.2-1. This requirement does not apply to brand	
does not apply to brand new protective equipment, unused	new protective equipment, unused equipment, or equipment	
equipment, or equipment which has not been used since	which has not been used since undergoing a through cleaning	
undergoing a through cleaning process.	process.	

# Guidance for the survey and construction of steel ships Part S S14 S14.2.10

Correction	Present	Note
Decontamination showers and eyewash are to be located in	Decontamination showers and eyewash are to be located in	
the vicinity of cargo manifolds, cargo pump room, etc. which	the vicinity of cargo manifolds, cargo pump room, etc. which	
are vulnerable to cargo splashes, and shielding walls are to be	are vulnerable to cargo splashes, and shielding walls are to be	
provided to prevent crew members from being sprayed by any	provided to prevent crew members from being sprayed by any	
additional cargo splashes during eye washing. The	additional cargo splashes during eye washing. The	
construction of a special locker for the storage of protective	construction of a special locker for the storage of protective	
equipment provided in the cargo area is to comply with the	equipment provided in the cargo area is to comply with the	
requirement in Chapter 1911.3.3, Part 1, Part C of the	requirement in Chapter 19, Part C of the Rules. The piping	Reference correction
<b>Rules</b> . The piping for decontamination showers and eyewash	for decontamination showers and eyewash is to be permanent	
is to be permanent metal piping complying with the	metal piping complying with the requirements in Chapter 6,	
requirements in Chapter 6, Part S of the Rules, and it is to	Part S of the Rules, and it is to be provided with thermal	
be provided with thermal insulation or drain connections at	insulation or drain connections at suitable locations to prevent	
suitable locations to prevent freeze damage.	freeze damage.	

# Guidance for the survey and construction of steel ships Part S S15 S15.13.3

Correction	Present	Note
With respect to the requirements specified in $15.313.3(2)$ ,	With respect to the requirements specified in 15.3.3(2),	Reference correction
Part S of the Rules, in case where additives have oxygen-	Part S of the Rules, in case where additives have oxygen-	
dependent inhibitor, MSC-MEPC.2/Circ.14, as amended, is to	dependent inhibitor, MSC-MEPC.2/Circ.14, as amended, is to	
be applied.	be applied.	

# Guidance for the survey and construction of steel ships Part S S15 S15.19.6

Correction	Present	Note
The level detecting devices used for high level alarm system	The level detecting devices used for high level alarm system	
and overflow control system are to be of type approved in	and overflow control system are to be of type approved in	XX7 1
accordance with the requirements of Chapter 4, Part 7 of the	accordance with the requirements of Chapter 4, Part 7 of the	Wording correction
Guidance for the Approval and Type Approval of	"Guidance for the Approval and Type Approval of	
Materials and Equipment for Marine Use <sup>22</sup> . When modular	Materials and Equipment for Marine Use". When modular	
units are provided in the control room or on bridge, level	units are provided in the control room or on bridge, level	
indicators and visible alarms independent from those (a), (b)	indicators and visible alarms independent from those (a), (b)	
and (c) given in the preceding S15.19.5, Part S are to be	and (c) given in the preceding S15.19.5, Part S are to be	
provided. Such audible alarms are not intended to identify	provided. Such audible alarms are not intended to identify	
alarms and thus they may not necessarily be independent.	alarms and thus they may not necessarily be independent.	
Visible and audible alarms are to be provided also in the cargo	Visible and audible alarms are to be provided also in the cargo	
areas. Visible alarms are to be provided at such locations	areas. Visible alarms are to be provided at such locations	
readily recognizable also from shore side. In case where no	readily recognizable also from shore side. In case where no	
control room is provided, audible and visible alarms are to be	control room is provided, audible and visible alarms are to be	
provided in the cargo control room. Except for entering the	provided in the cargo control room. Except for entering the	
cargo tanks which have thoroughly been washed clean, the	cargo tanks which have thoroughly been washed clean, the	
testing device for detecting ends is to be provided outside the	testing device for detecting ends is to be provided outside the	
tank. Simulation test of electric circuit or self-monitoring	tank. Simulation test of electric circuit or self-monitoring	
circuit may be accepted.	circuit may be accepted.	

# Guidance for the survey and construction of steel ships Part I I8 I8.3.6

Correction	Present	Note
With respect to the provisions of 8.3.6-4, Part I of the		Wording correction
<u><b>Rules</b></u> , when the direct analysis is not based on beam theory,	direct analysis is not based on beam theory, the allowable	wording correction
the allowable shear stress is to be $\tau_y$ .	shear stress is to be $\tau_y$ .	

# Guidance for the survey and construction of steel ships Part O O1 O1.2.4

	Correction		Present	Note
	With respect to ships complying with relevant		With respect to ships complying with relevant	
-	ements given in this part, notations corresponding to the	-	ements given in this part, notations corresponding to the	
	se of those ships defined in 1.3.2, Part O of the Rules	1 1	e of those ships defined in 1.3.2, Part O of the Rules	
	ixed to the classification characters as follows:		ixed to the classification characters as follows:	
(1)	Dredgers: Dredger (abbreviated to D)	(1)	Dredgers: Dredger (abbreviated to D)	
(2)	Crane ships	(2)	Crane ships	
	(a) Ship-type ships: <i>Crane Vessel</i> (abbreviated to <i>CV</i> )		(a) Ship-type ships: <i>Crane Vessel</i> (abbreviated to <i>CV</i> )	
	(b) Barge-type ships: <i>Floating Crane</i> (abbreviated to <i>FC</i> )		(b) Barge-type ships: <i>Floating Crane</i> (abbreviated to <i>FC</i> )	
(3)	Vessels engaged in towing operations	(3)	Vessels engaged in towing operations	
	(a) Tugs: <i>Tug</i>		(a) Tugs: <i>Tug</i>	
	(b) Ocean Tugs: <i>Towing Vessel</i> (abbreviated to <i>TV</i> )		(b) Ocean Tugs: <i>Towing Vessel</i> (abbreviated to <i>TV</i> )	
	(c) Escort Tugs: <i>Escort Vessel</i> (abbreviated to <i>EV</i> )		(c) Escort Tugs: <i>Escort Vessel</i> (abbreviated to <i>EV</i> )	
(4)	Pusher tugs: Pusher	(4)	Pusher tugs: Pusher	
(5)	Fire fighting vessels	(5)	Fire fighting vessels	
	With respect to fire fighting vessels, the following		With respect to fire fighting vessels, the following	
	notations corresponding to the installed fire fighting		notations corresponding to the installed fire fighting	
	equipment defined in <b>O6.4.2-1</b> are affixed.		equipment defined in <b>O6.4.2-1</b> are affixed.	
	(a) FFV1 vessels: <i>Fire Fighting Vessel-Type 1</i> (abbreviated to <i>FFV1</i> )		(a) FFV1 vessels: <i>Fire Fighting Vessel-Type 1</i> (abbreviated to <i>FFV1</i> )	
	(b) FFV2 vessels: <i>Fire Fighting Vessel-Type 2</i> (abbreviated to <i>FFV2</i> )		(b) FFV2 vessels: <i>Fire Fighting Vessel-Type 2</i> (abbreviated to <i>FFV2</i> )	
	(c) FFV3 vessels: <i>Fire Fighting Vessel-Type 3</i> (abbreviated to <i>FFV3</i> )		(c) FFV3 vessels: <i>Fire Fighting Vessel-Type 3</i> (abbreviated to <i>FFV3</i> )	
	In cases where the fire fighting equipment		In cases where the fire fighting equipment	
	specified in Table O1.2.4 is installed, additional		specified in Table O1.2.4 is installed, additional	
	descriptions can be affixed. (For example, Fire		descriptions can be affixed. (For example, Fire	
	Fighting Vessel-Type 1 equipped with WSS,		Fighting Vessel-Type 1 equipped with WSS,	
	MFG)		MFG)	
	In addition, if foam monitor systems for fire		In addition, if foam monitor systems for fire	
	fighting complying with the requirements given		fighting complying with the requirements given	

	in <b>O6.4.2-9</b> are installed, the following additional		in <b>O6.4.2-9</b> are installed, the following additional	
	descriptions are affixed. (For example, Fire		descriptions are affixed. (For example, Fire	
	Fighting Vessel-Type 3 equipped with WSS,		Fighting Vessel-Type 3 equipped with WSS,	
	FMS3)		FMS3)	
	(ad) FMS1: Have capacities of more than 1,000//		(a) <i>FMS1</i> : Have capacities of more than 1,000 <i>l</i> /	Wording correction
	minute		minute	
	(be) FMS2: Have capacities of more than 3,000//		(b) <i>FMS2</i> : Have capacities of more than 3,000//	
	minute		minute	
	(ef) <i>FMS3</i> : Have capacities of more than 6,000 <i>l/minute</i>		(c) <i>FMS3</i> : Have capacities of more than 6,000 <i>l/minute</i>	
	(dg) <i>FMS4</i> : Have capacities of more than 12,000 <i>l/minute</i>		(d) <i>FMS4</i> : Have capacities of more than 12,000 <i>l/minute</i>	
	(eh) FMS5: Two fixed low expansion foam monitors		(e) <i>FMS5</i> : Two fixed low expansion foam monitors	
	that have capacities more than 5,000 <i>l/minute</i>		that have capacities more than 5,000 <i>l/minute</i>	
(6)	Offshore supply vessels: Offshore Supply Vessel	(6)	Offshore supply vessels: Offshore Supply Vessel	
	(abbreviated to OSV)		(abbreviated to OSV)	
(7)	Anchor handling vessels: Anchor Handling Vessel	(7)	Anchor handling vessels: Anchor Handling Vessel	
	(abbreviated to AHV)		(abbreviated to AHV)	
(8)	Vessels engaged in laying objects on the seabed	(8)	Vessels engaged in laying objects on the seabed	
	(a) Cable laying vessels: <i>Cable Layer</i> (abbreviated to		(a) Cable laying vessels: <i>Cable Layer</i> (abbreviated to	
	CL)		CL)	
	(b) Pipe laying vessels: <i>Pipe Layer</i> (abbreviated to <i>PL</i> )		(b) Pipe laying vessels: <i>Pipe Layer</i> (abbreviated to <i>PL</i> )	
(9)	Oil Recovery Vessels: Oil Recovery Vessel	(9)	Oil Recovery Vessels: Oil Recovery Vessel	
	(abbreviated to ORV)		(abbreviated to ORV)	
(10)	Wind turbine installation ships	(10)	Wind turbine installation ships	
	(a) Ship-type ships: <i>Wind Turbine Installation Ship</i>		(a) Ship-type ships: <i>Wind Turbine Installation Ship</i>	
	(abbreviated to <i>WTIS</i> )		(abbreviated to <i>WTIS</i> )	
	(b) Barge-type ships: Wind Turbine Installation		(b) Barge-type ships: Wind Turbine Installation	
	Barge (abbreviated to WTIB)		Barge (abbreviated to WTIB)	
	(c) Self-elevating ships: <i>Self-elevating Wind Turbine</i>		(c) Self-elevating ships: <i>Self-elevating Wind Turbine</i>	
	Installation Ship (abbreviated to SEWTIS) or		Installation Ship (abbreviated to SEWTIS) or	
	Self-elevating Wind Turbine Installation Barge		Self-elevating Wind Turbine Installation Barge	
	(abbreviated to SEWTIB)		(abbreviated to SEWTIB)	

(d) Column-stabilized ships: Column-stabilized	(d) Column-stabilized ships: Column-stabilized	
Wind Turbine Installation Unit (abbreviated to	Wind Turbine Installation Unit (abbreviated to	
CSWTIU)	CSWTIU)	
(11) Wind Farm Support Vessel	(11) Wind Farm Support Vessel	
(a) Ships primarily engaged in transporting workers	(a) Ships primarily engaged in transporting workers	
to the offshore wind turbines and serving as	to the offshore wind turbines and serving as	
accommodation facilities for workers	accommodation facilities for workers	
Wind Farm Support Vessel - Service Operation	Wind Farm Support Vessel - Service Operation	
Vessel (abbreviated as WFSV-SOV)	Vessel (abbreviated as WFSV-SOV)	
(b) Ships primarily engaged in transporting workers	(b) Ships primarily engaged in transporting workers	
Wind Farm Support Vessel -Crew Transfer	Wind Farm Support Vessel -Crew Transfer	
Vessel (abbreviated as WFSV-CTV)	Vessel (abbreviated as WFSV-CTV)	
In addition, in cases where 12.8.2-3, Part O of	In addition, in cases where 12.8.2-3, Part O of	
the Rules is applied and when requested by	the Rules is applied and when requested by	
shipowners, the following additional notation	shipowners, the following additional notation	
may be affixed. "Heavy Deck Cargo"	may be affixed. "Heavy Deck Cargo"	
(abbreviated as HDC)	(abbreviated as HDC)	
(12) Notations, except for that mentioned above,	(12) Notations, except for that mentioned above,	
corresponding to intended purposes of work-ships	corresponding to intended purposes of work-ships	
within the (1) to (11) mentioned above, notations	within the (1) to (11) mentioned above, notations	
corresponding to each purpose are affixed. (For example,	corresponding to each purpose are affixed. (For example,	
Tugs-cum-Fire fighting vessels: Tug/Fire Fighting Vessel-	Tugs-cum-Fire fighting vessels: Tug/Fire Fighting Vessel-	
Type 1)	Type 1)	

# Guidance for the survey and construction of steel ships Part P P1 P1.1.6-1

Correction	Present	Note
<b>1</b> With respect to units complying with relevant requirements given in this Part, notations corresponding to the purposes of those units defined in <b>1.2.3</b> , <b>Part P of the Rules</b>	1 With respect to units complying with relevant requirements given in this <b>Part</b> , notations corresponding to the purposes of those units defined in 1.2.3, <b>Part P of the</b>	Wording correction
are affixed to the Classification Characters as follows.	<b>Rules</b> are affixed to the Classification Characters as follows.	
(1) Mobile offshore drilling units	(1) Mobile offshore drilling units	
(a) Self-elevating mobile offshore drilling units:	(a) Self-elevating mobile offshore drilling units:	
Self-Elevating Drilling Unit (abbreviated to SEDU)	Self-Elevating Drilling Unit (abbreviated to SEDU)	
(b) Column-stabilized mobile offshore drilling units:	(b) Column-stabilized mobile offshore drilling units:	
Column-Stabilized Drilling Unit (abbreviated to	Column-Stabilized Drilling Unit (abbreviated to	
CSDU)	CSDU)	
(c) Ship-type mobile offshore drilling units: <i>Drilling</i>	(c) Ship-type mobile offshore drilling units: <i>Drilling</i>	
Vessel  (abbreviated to  DV)	Vessel (abbreviated to $DV$ )	
(d) Barge-type mobile offshore drilling units: Drilling Barge (abbreviated to DB)	(d) Barge-type mobile offshore drilling units: Drilling Barge (abbreviated to DB)	
In addition, for units complying with the following	In addition, for units complying with the following	
requirements in addition to requirements in this part, the	requirements in addition to requirements in this part, the	
notation of "Mobile offshore Drilling Unit"	notation of <i>"Mobile offshore Drilling Unit"</i>	
(abbreviated to MODU) is affixed. (For example, in the	(abbreviated to MODU) is affixed. (For example, in the	
case of self-elavating mobile offshore drilling units,	case of self-elavating mobile offshore drilling units,	
Mobile Offshore Drilling Unit/ Self-Elevating Drilling	Mobile Offshore Drilling Unit/ Self-Elevating Drilling	
Unit (abbreviated to MODU/SEDU)	Unit (abbreviated to MODU/SEDU)	
(a) 1.1.1-2 <del>, Part 1</del> of the Rules for Safety	(a) 1.1.1-2, Part 1 of the Rules for Safety	
Equipment	Equipment	
(b) 1.1.1-3 of the Rules for Cargo Handling	(b) 1.1.1-3 of the Rules for Cargo Handling	
Appliances (c) 1.1.1-3 of the Rules for Radio Installations	Appliances (c) 1.1.1-3 of the Rules for Radio Installations	
(d) The Rules for Anti-Fouling Systems on Ships	(d) The Rules for Anti-Fouling Systems on Ships	
<ul><li>(d) The Kites for Anti-Found Systems on Sinps</li><li>(2) Storage units: <i>Storage Barge</i> (abbreviated to <i>SB</i>)</li></ul>	<ul><li>(2) Storage units: <i>Storage Barge</i> (abbreviated to <i>SB</i>)</li></ul>	
In cases where oil is stored, the notation to be affixed	In cases where oil is stored, the notation to be affixed	
is " <i>Oil Storage Barge</i> ", and additional descriptions	is "Oil Storage Barge", and additional descriptions	
regarding flash points of oil are affixed. (For example,	regarding flash points of oil are affixed. (For example,	

### Editorial Correction for Technical Rules and Guidance

(3)	Oil Storage Barge, Flash point below 60 °C) Moored floating units: Notations corresponding to the purpose of such units are affixed. (For example, Hotel ships: <i>Floating Hotel</i>	(3)	Oil Storage Barge, Flash point below 60 °C) Moored floating units: Notations corresponding to the purpose of such units are affixed. (For example, Hotel ships: <i>Floating Hotel</i>	
(4)	(abbreviated to <i>FH</i> )) Plant barges: Notations corresponding to the types of installed industrial factories are affixed.	(4)	(abbreviated to <i>FH</i> )) Plant barges: Notations corresponding to the types of installed industrial factories are affixed.	
(5)	<ul> <li>(For example, Plant barges for generating electricity: <i>Power Plant Barge</i> (abbreviated to <i>PPB</i>))</li> <li>Accommodation barges: Accommodation Barge (abbreviated to AB)</li> </ul>	(5)	<ul> <li>(For example, Plant barges for generating electricity: <i>Power Plant Barge</i> (abbreviated to <i>PPB</i>))</li> <li>Accommodation barges: <i>Accommodation Barge</i> (abbreviated to <i>AB</i>)</li> </ul>	

# Guidance for the survey and construction of steel ships Part P P9 P9.4.2-2

	Correction		Present	Note
2	Supporting structures of drilling derricks	2	Supporting structures of drilling derricks	Wording correction
(1)	A structural analysis is to be performed for drilling	(1)	A structural analysis is to be performed for drilling	
	derricks, drilling floors and substructures (including		derricks, drilling floors and substructures (including	
	the supporting structures of the drilling derricks and		the supporting structures of the drilling derricks and	
	drilling floors) in accordance with the requirements		drilling floors) in accordance with the requirements	
	in 7.2.1, Part P of the Rules. Allowable stresses are		in 7.2.1, Part P of the Rules. Allowable stresses are	
	not to exceed the values in Table P7.1, Part P of the		not to exceed the values in Table P7.1 according to	
( <b>2</b> )	<u>Rules</u> according to the kind of stress.	( <b>2</b> )	the kind of stress.	
(2)	The loads used for structural analysis in (1) above are to be in accordance with the following (a) and (b). In	(2)	The loads used for structural analysis in (1) above are to be in accordance with the following (a) and (b). In	
	to be in accordance with the following (a) and (b). In addition, when deemed necessary by the Society,		to be in accordance with the following (a) and (b). In addition, when deemed necessary by the Society,	
	additional requirements may be requested.		additional requirements may be requested.	
	(a) Loads taken in operating condition, the dead		(a) Loads taken in operating condition, the dead	
	load of the ship, loads caused by snow and icing,		load of the ship, loads caused by snow and icing,	
	as well as the loads transmitted from hooks,		as well as the loads transmitted from hooks,	
	fastlines, deadlines, setbacks, rotary tables and		fastlines, deadlines, setbacks, rotary tables and	
	riser tensioners are to be considered in the static		riser tensioners are to be considered in the static	
	loading condition.		loading condition.	
	(b) The static loads specified in (a) as well as		(b) The static loads specified in (a) as well as	
	dynamic loads such as wind loads and loads due		dynamic loads such as wind loads and loads due	
	to ship acceleration and inclination are to be		to ship acceleration and inclination are to be	
	considered in combined loads.		considered in combined loads.	
(3)	For self-elevating ships having movable cantilever	(3)	For self-elevating ships having movable cantilever	
	constructions and skid beams which support		constructions and skid beams which support	
	substructures, a structural analysis is to be performed		substructures, a structural analysis is to be performed	
	for such cantilever constructions and skid beams		for such cantilever constructions and skid beams	
	according to 7.2.1, Part P of the Rules. Allowable		according to 7.2.1, Part P of the Rules. Allowable	
	stresses are not to exceed the values in Table P7.1,		stresses are not to exceed the values in Table P7.1	
	Part P of the Rules according to the kind of stress.		according to the kind of stress. Reaction forces	
	Reaction forces transmitted from movable cantilever		transmitted from movable cantilever constructions	
	constructions and skid beams are to be considered in		and skid beams are to be considered in the loads	
	the loads acting on hull constructions.		acting on hull constructions.	

#### Guidance for the survey and construction of steel ships Part P P10 P10.7.1-1

Correction	Present	Note
1 The DP-control systems and computer systems used	1 The DP-control systems and computer systems used	Wording correction
for the Class 2 DPS and Class 3 DPS are to be approved by	for the Class 2 DPS and Class 3 DPS are to be approved by	working correction
the Society in accordance with the requirements of Chapter 1,	the Society in accordance with the requirements of Chapter	
Part 7 of the "Guidance for the Approval and Type	1, Part 7 of the "Guidance for the Approval and Type	
Approval of Materials and Equipment for Marine Use <sup>22</sup> .	Approval of Materials and Equipment for Marine Use".	

### Guidance for the survey and construction of steel ships Part P P10 P10.7.1-2

Correction	Present	Note
2 The DP-control systems and computer systems used	2 The DP-control systems and computer systems used	Wording correction
for the Class 1 DPS, as a rule, are to be approved by the	for the Class 1 DPS, as a rule, are to be approved by the	
Society in accordance with the requirements of Chapter 1,	Society in accordance with the requirements of Chapter 1,	
Part 7 of the "Guidance for the Approval and Type	Part 7 of the "Guidance for the Approval and Type	
Approval of Materials and Equipment for Marine Use <sup>22</sup> as	Approval of Materials and Equipment for Marine Use" as	
far as practicable.	far as practicable.	

#### Guidance for the survey and construction of steel ships Part P P11 P11.1.14-3

Correction	Present	Note
3 The wording "requirements specified otherwise by the Society" specified in 11.1.14-7. Part P of the Rules means	3 The wording "requirements specified otherwise by the Society" specified in 11.1.14-7, Part P of the Rules means	Reference correction
	the requirements specified in Annex 5.3.5, Part D of the	
Rules.	Rules.	

# Guidance for the survey and construction of steel ships Part P P12 P12.1.3-2

Correction	Present	Note
2 The wording "subject to the approval of the Society"	2 The wording "subject to the approval of the Society"	Reference correction
in 12.1.3-2, Part P of the Rules means <u>Chapter 4, Part 52</u> of	in 12.1.3-2, Part P of the Rules means Part 5 of the	
the <u>"GuidanceRules</u> for the Approval and Type Approval	"Guidance for the Approval and Type Approval of	
of MaterialsManufacturers and Equipment for Marine	Materials and Equipment for Marine Use". Equipment and	
Use"Service Suppliers. Equipment and cables approved are	cables approved are made public on the "List of Approved	
made public on the "List of Approved Materials and	Materials and Equipment".	
Equipment".		

### Guidance for the survey and construction of steel ships Part PS PS8 PS8.1.3-1

Correction	Present	Note
1 The wording "subject to Society approval" in <b>8.1.3-2</b> ,	1 The wording "subject to Society approval" in 8.1.3-2,	Reference correction
Part PS of the Rules means <u>Chapter 4</u> , Part <u>52</u> of the	Part PS of the Rules means Part 5 of the "Guidance for the	
"Guidance <u>Rules</u> for the Approval and Type Approval of	Approval and Type Approval of Materials and Equipment	
MaterialsManufacturers and Equipment for Marine	for Marine Use". Equipment and cables approved for use are	
Use <u>Service Suppliers</u> ". Equipment and cables approved for	made public on the "List of Approved Materials and	
use are made public on the "List of Approved Materials and	Equipment".	
Equipment".		

### Guidance for the survey and construction of steel ships Part PS PS8 PS8.2.1-1

Correction	Present	Note
1 In 8.2.1-2, Part PS of the Rules, the electrical installations listed in the following (1) to (3) may be excluded from these electrical installations relations and the second	1 In 8.2.1-2, Part PS of the Rules, the electrical installations listed in the following (1) to (3) may be excluded from these solutions are the second	Wording correction
from those electrical installations which are to be power supplied in the event of any one generating set being stopped. (1) Thrusters not forming part of the main propulsion	from those electrical installations which are to be power supplied in the event of any one generating set being stopped.	
(1) Thrusters not forming part of the main propulsion machinery or positioning systems specified in Chapter: 4, Part PS of the Rules	<ul> <li>(1) Thrusters not forming part of the main propulsion machinery or positioning systems specified in Chapter.4, Part PS of the Rules</li> </ul>	
<ul><li>(2) Refrigerating compressors for air conditioning installations</li></ul>	± /	
(3) Others as deemed acceptable by the Society	(3) Others as deemed acceptable by the Society	

# Guidance for the survey and construction of steel ships Part PS PS8 PS8.3.3-2

Correction	Present	Note
2 With respect to the requirements given in 8.3.3(2)(a),	2 With respect to the requirements given in 8.3.3(2)(a),	Wording correction
Part PS of the Rules, in cases where inverters or converters	Part PS of the Rules, in cases where inverters or converters	working correction
are connected to the output circuits of batteries (consumer	are connected to the output circuits of batteries (consumer	
side), maximum permitted voltage fluctuations may be taken	side), maximum permitted voltage fluctuations may be taken	
as those specified in Table <u>Tables</u> H2.1(a) or H2.1(b), 2.1.2-	as those specified in Table H2.1(a) or H2.1(b), 2.1.2-3, Part	
3, Part H of the Rules respectively, notwithstanding any	H of the Rules respectively, notwithstanding any battery	
battery voltage drops.	voltage drops.	

#### Guidance for the survey and construction of steel ships Part R R4 R4.5.3-1

Correction	Present	Note
1 When a ship carrying dangerous chemical in bulk	1 When a ship carrying dangerous chemical in bulk	Wording correction
equipped with controlled tank venting systems complying	equipped with controlled tank venting systems complying	working correction
with 8.8.2, Part S of the Rules carries crude oil, oil or other	with 8.8.2, Part S of the Rules carries crude oil, oil or other	
similar liquid cargoes with a vapour pressure less than 0.28	similar liquid cargoes with a vapour pressure less than 0.28	
MPa absolute at 37.8°C, the mentioned ship may be regarded	MPa absolute at 37.8°C, the mentioned ship may be regarded	
as a ship complying with the requirements in 4.5.3-1, Part R	as a ship complying with the requirements in 4.5.3-1, Part R	
of the Rules.	of the Rules.	

#### Guidance for the survey and construction of steel ships Part R R4 R4.5.7-4

Correction	Present	Note
4 The wording "deemed appropriate by the Society" in	4 The wording "deemed appropriate by the Society" in	Wording correction
4.5.7(1) and (2), Part R of the Rules means to be approved by	4.5.7(1) and (2), Part R of the Rules means to be approved by	
the Society in accordance with Chapter 7, Part 7 of	the Society in accordance with Chapter 7, Part 7 of	
"Guidance for the Approval and Type Approval of	"Guidance for the Approval and Type Approval of	
Materials and Equipment for Marine Use <sup>22</sup> or to pass the	Materials and Equipment for Marine Use" or to pass the	
test of the official organization deemed appropriate by the	test of the official organization deemed appropriate by the	
Society.	Society.	

### Guidance for the survey and construction of steel ships Part R R9 R9.2.4-1

Correction	Present	Note
1 With respect to the requirements of 9.2.4-2, Part R of	1 With respect to the requirements of 9.2.4-2, Part R of	Wording correction
the Rules, the provisions of <u>R9.2.3</u> -1 to <u>R9.2.3</u> -15 of <del>R9.2.3</del>	the Rules, the provisions of -1 to -15 of R9.2.3 are to be	there are a second s
are to be referred to.	referred to.	

### Guidance for the survey and construction of steel ships Part R R10 R10.5.2-1

Correction	Present	Note
1 With respect to the requirements of 10.5.2, Part R of	1 1	Wording correction
the Rules, the provisions of <u>R10.5.1</u> -1 to $-5 \text{ of } R10.5.1-5$ of	the Rules, the provisions of -1 to -5 of R10.5.1 of this	working correction
this Guidance are to be applied.	Guidance are to be applied.	

### Guidance for the survey and construction of steel ships Part R R10 R10.5.3-1

Correction	Present	Note
1 With respect to the requirements of 10.5.3, Part R of	1 With respect to the requirements of 10.5.3, Part R of	Wording correction
the Rules, the provisions of <u>R10.5.1</u> -1 to <u>-5 of R10.5.1-5</u> and	the Rules, the provisions of -1 to -5 of R10.5.1 and R10.5.2-	working correction
R10.5.2-2 of this Guidance are to be applied.	2 of this Guidance are to be applied.	

#### Guidance for the survey and construction of steel ships Part R R10 R10.6.2-2

Correction	Present	Note
2 The wording "appropriate fire-extinguishing	2 The wording "appropriate fire-extinguishing	Wording correction
arrangement approved by the Society" means, in principle, the	arrangement approved by the Society" means, in principle, the	
fire-extinguishing arrangement specified in 10.6.2-1-or	fire-extinguishing arrangement specified in -1 or -3 of 10.6.2,	
<u>10.6.2</u> -3-of 10.6.2, Part R of the Rules as appropriately.	Part R of the Rules as appropriately.	

### Guidance for the survey and construction of steel ships Part R R10 R10.7.1-1

Correction	Present	Note
1 With respect to the provisions of 10.7, Part R of the	1 With respect to the provisions of 10.7, Part R of the	Reference correction
Rules, for container cargo holds fitted with partially	Rules, for container cargo holds fitted with partially	
weathertight hatch covers in accordance with the provisions of	weathertight hatch covers in accordance with the provisions of	
14.6.7, Part 1, Part C of the Rules, closing appliances for	14.6.7, Part 1, Part C of the Rules, closing appliances for	
such holds may be omitted, provided that the amount of	such holds may be omitted, provided that the amount of	
carbon dioxide is increased in accordance with the provisions	carbon dioxide is increased in accordance with the provisions	
of <b>R25.2.2-4</b> <u>5</u> .	of <b>R25.2.2-4</b> .	

# Guidance for Marine Pollution Prevention Systems Part 2 Chapter 4 4.1.2-5

Correction	Present	Note
5 At an occasional survey in the event where the	5 At an occasional survey in the event where the	Reference correction
exhaust gas cleaning system to which 1.2.2-1, Part 8 and/or	exhaust gas cleaning system to which 1.2.2-1, Part 8 and/or	
<b>2.2-1, Part 8</b> applies is newly installed on board the ship,	2.2-1, Part 8 applies is newly installed on board the ship,	
a survey is to be carried out in accordance with 2.1.2-	a survey is to be carried out in accordance with 2.1.2-	
1(6)(c) and 2.1.3-5(2)(b), Part 2 of the Rules.	1(6)(c) and 2.1.3-5(2)(b), Part 2 of the Rules.	

# Guidance for Cargo Refrigerating Installations Annex 1.1.1-2 1.1.1-1

Correction	Present	Note
1 Application	1 Application	Reference correction
(1) The Guidance applies to the survey and construction	(1) The Guidance applies to the survey and construction	
of the controlled atmosphere systems (hereinafter	of the controlled atmosphere systems (hereinafter	
referred to as the "CA system") which may be	referred to as the "CA system") which may be	
considered under the provision of 1.1.1-5 of the	considered under the provision of 1.1.1-5 of the	
"Rules for Cargo Refrigerating Installations"	"Rules for Cargo Refrigerating Installations"	
(hereinafter referred to as "the Rules") and is to be	(hereinafter referred to as "the Rules") and is to be	
registered under Chapter 3 in "of the Regulations	registered under Chapter 3 in "Regulations for the	
for the Classification and Registry of Ships <sup>22</sup> .	<b>Classification and Registry of Ships</b> ".	
(2) The Guidance applies to CA systems using Nitrogen	(2) The Guidance applies to CA systems using Nitrogen	
as a sealing gas. For CA system using other gases, the	as a sealing gas. For CA system using other gases, the	
respective requirements will be determined as	respective requirements will be determined as	
appropriate.	appropriate.	

## Guidance for Cargo Handling Appliances Chapter 4 4.3.8-2

Correction	Present	Note
2 The method of reinforcement specified in <u>-1</u> is to be	1	Wording correction
applied also to gantry cranes and other special cranes having	applied also to gantry cranes and other special cranes having	0
slewing ring.	slewing ring.	

### Guidance for Cargo Handling Appliances Chapter 7 7.2.2-3

Correction	Present	Note
<b>3</b> The "fleet angle" mentioned in 7.2.2-2(1) and 7.2.2-	8	Wording correction
2(2) of the Rules is the angle $\alpha$ specified in Fig. 7.2.2-1 and	2(2) of the Rules is the angle $\alpha$ specified in Fig.7.2.2-1 and	
the angle $\theta$ specified in Fig. 7.2.2-2 respectively.	the angle $\theta$ specified in Fig.7.2.2-2 respectively.	

# Guidance for Marine Pollution Prevention Systems Part 2 Chapter 3 3.6.2-1

Correction	Present	Note
1 In applying 3.6.2, Part 2 of the Rules, 2.3.2-2 of <u>the</u> Rules for Automatic and Remote <u>Control Systems</u> is also to be applied for surveys of periodically unattended machinery spaces.	Rules for Automatic and Remote is also to be applied for	Wording correction

# Guidance for Marine Pollution Prevention Systems Part 7 Chapter 1 1.1.1-2

	Correction		Present	Note
2	"The reduction of requirements" specified in 1.1.1-4,	2	"The reduction of requirements" specified in 1.1.1-4,	
Part 7	7 of the Rules is the reductions within the extent as	Part 7	of the Rules is the reductions within the extent as	
follow	ing (1) and (2):	followi	ng (1) and (2):	
(1)	Required number of bower anchors may be reduced	(1)	Required number of bower anchors may be reduced	
	to one.		to one.	
(2)	Steel wire ropes or synthetic fibre ropes may be used	(2)	Steel wire ropes or synthetic fibre ropes may be used	
	in lieu of chain cables provided that the following		in lieu of chain cables provided that the following	
	conditions are satisfied.		conditions are satisfied.	
	(a) At least one length of chain is, in principle, to be		(a) At least one length of chain is, in principle, to be	
	fitted between the bower anchor and steel wire		fitted between the bower anchor and steel wire	
	ropes or synthetic fibre ropes. However, where		ropes or synthetic fibre ropes. However, where	
	steel wire ropes or synthetic fibre ropes can be		steel wire ropes or synthetic fibre ropes can be	
	easily connected to the chain cable on board in		easily connected to the chain cable on board in	
	cases of emergency anchorage, steel wire ropes		cases of emergency anchorage, steel wire ropes	
	or synthetic fibre ropes may be stored apart from		or synthetic fibre ropes may be stored apart from	
	chain cables.		chain cables.	
	(b) The breaking test load for steel wire ropes or		(b) The breaking test load for steel wire ropes or	
	synthetic fibre ropes specified in Chapter 4 or 5,		synthetic fibre ropes specified in Chapter 4 or 5,	
	Part L of the Rules for the Survey and		Part L of the Rules for the Survey and	
	<b>Construction of Steel Ships</b> is not less than the		<b>Construction of Steel Ships</b> is not less than the	
	breaking load for chain cables given in Table		breaking load for chain cables given in Table	
	7.1.1, Part 7 of the Rules. The breaking test load		7.1.1, Part 7 of the Rules. The breaking test load	
	for chain cables is to be in accordance with the		for chain cables is to be in accordance with the	
	requirements specified in Chapter 3, Part L of		requirements specified in Chapter 3, Part L of	
	the Rules for the Survey and Construction of		the Rules for the Survey and Construction of	
	Steel Ships according to the diameter. The		Steel Ships according to the diameter. The	
	length of steel wire ropes or synthetic fibre ropes		length of steel wire ropes or synthetic fibre ropes	
	are to be at least equal to the length of chain		are to be at least equal to the length of chain	Reference correction
	cables given in Table 7.1.1 <u>, Part 7</u> of the Rules.		cables given in Table 7.1.1 of the Rules.	Meterence correction

# Guidance for Marine Pollution Prevention Systems Part 7 Chapter 3 3.1.1

Correction	Present	Note
In 3.1.1-2(2)), Part 7 of the Rules, "measures deemed appropriate by the Society" implies that (1) and (2) below need	In 3.1.1-2(2) of the Rules, "measures deemed appropriate by the Society" implies that (1) and (2) below need to be	Reference correction
to be satisfied.	satisfied.	
(1) Stanchions are to be of increased breadth as in (a) to	(1) Stanchions are to be of increased breadth as in (a) to	
(c) below, depending on their arrangement. The figure	(c) below, depending on their arrangement. The figure	
of these stanchions is given in Fig.3.1.1-1.	of these stanchions is given in Fig.3.1.1-1.	
(a) at least every third stanchion is to be of increased	(a) at least every third stanchion is to be of increased	
breadth $: kb_s \ge 2.9b_s$	breadth $: kb_s \ge 2.9b_s$	
(b) at least every second stanchion is to be of increased breadth $h > 2.4h$	(b) at least every second stanchion is to be of increased breadth $h \ge 2.4h$	
increased breadth $: kb_s \ge 2.4b_s$	increased breadth $:kb_s \ge 2.4b_s$	
(c) every stanchion is to be of increased breadth $h_{h} > 1.0h_{h}$	(c) every stanchion is to be of increased breadth $h = 1.0h$	
$kb_s \ge 1.9b_s$	$kb_s \ge 1.9b_s$	
$kb_s$ : increased breath of stanchion ( <i>mm</i> ) $b_s$ : breadth of stanchion according to	$kb_s$ : increased breath of stanchion ( <i>mm</i> ) $b_s$ : breadth of stanchion according to	
<i>b<sub>s</sub></i> : breadth of stanchion according to standards approved by the Society.( <i>mm</i> )	<i>b<sub>s</sub></i> : breadth of stanchion according to standards approved by the Society.( <i>mm</i> )	
Stanchions of increased breadth are to be welded to	Stanchions of increased breadth are to be welded to	
the deck with double continuous fillet welds and a	the deck with double continuous fillet welds and a	
minimum leg size of 7 mm or as specified by standards	minimum leg size of 7 mm or as specified by standards	
approved by the Society.	approved by the Society.	
<ul><li>(2) Stanchions with increased breadth, as described in (1)</li></ul>	<ul><li>(2) Stanchions with increased breadth, as described in (1)</li></ul>	
above, are to be aligned with the members below the	above, are to be aligned with the members below the	
deck. These members are to be a minimum of 100x12	deck. These members are to be a minimum of 100x12	
mm flat bar welded to the deck by double continuous	mm flat bar welded to the deck by double continuous	
fillet welds. The stanchions with increased breadth	fillet welds. The stanchions with increased breadth	
need not be aligned with under deck structures for	need not be aligned with under deck structures for	
deck plating exceeding 20 mm.	deck plating exceeding 20 mm.	

## Guidance for Marine Pollution Prevention Systems Part 6 Chapter 1 1.10.2

Correction	Present	Note
2 Where the arm of the shaft bracket is of a solid arm made of steel or bronze castings, the scantling of shaft bracket arms is to satisfy with the following formula.	2 Where the arm of the shaft bracket is of a solid arm made of steel or bronze castings, the scantling of shaft bracket arms is to satisfy with the following formula.	Wording correction
$C^2 t \ge \frac{1}{368} k \frac{Ha}{RD_p} (m^3)$	$C^2 t \ge \frac{1}{368} k \frac{Ha}{RD_p} (m^3)$	
where:	where:	
C: The longitudinal length of cross section of the	C : The longitudinal length of cross section of the	
arm $(m)$ . However, if the value exceeds $10t$ , the	arm $(m)$ . However, if the value exceeds $10t$ , the	
length of the arm is to be taken as 10t. (See	length of the arm is to be taken as 10t. (See	
Fig.6.1.10.1-1)	Fig.6.1.10.1-1)	
t: The thickness of cross section of the arm $(m)$ .	t: The thickness of cross section of the arm $(m)$ .	
(See Fig. 6.1.10.1-1)	(See Fig. 6.1.10.1-1)	
<i>a</i> : The lever of the arm ( <i>m</i> ). ( <i>See</i> <b>Fig. 6.1.10.1-1</b> )	a: The lever of the arm ( $m$ ). (See Fig. 6.1.10.1-1)	
H: The maximum continuous output of the engine $(kW)$ .	H: The maximum continuous output of the engine $(kW)$ .	
R: The number of maximum continuous revolutions	<i>R</i> : The number of maximum continuous revolutions	
( <i>rpm</i> ).	<i>(rpm)</i> .	
$D_p$ : As specified in preceding 1.10.1-1(2).	$D_p$ : As specified in preceding 1.10.1-1(2).	
k: Coefficient corresponding to the <u>chiptip</u>	k: Coefficient corresponding to the chip clearance	
clearance as given by the following formula.	as given by the following formula.	
$\log k = 1.2 - 3.62 \frac{d_0}{D_p}$	$\log k = 1.2 - 3.62 \frac{d_0}{D_p}$	
$d_0$ : The <u>chiptip</u> clearance (m)	$d_0$ : The chip clearance (m)	

## **Guidance for Marine Pollution Prevention Systems Part 7 Chapter 3 3.6.3**

	Correction	Present	Note
Closing	appliances required in 3.6.3, Part 7 of the Rules	Closing appliances required in 3.6.3 of the Rules are to be	Reference correction
are to be c	f steel or other equivalent materials.	of steel or other equivalent materials.	

# Guidance for Marine Pollution Prevention Systems Part 9 Chapter 1 1.2.1-1

Correction	Present	Note
1 The wordings "navigable speed" in 1.2.1-3, Part 9 of	1 The wordings "navigable speed" in 1.2.1-3 of the	
the Rules means a speed at which the ship is capable of	1 1 0	Defense competies
steering and being kept navigability for an extended period of	and being kept havigability for an extended period of time (the	Reference correction
time (the period required to get the nearest port for repairs).	period required to get the nearest port for repairs). Normally,	
Normally, 7 knots or a speed corresponding to 1/2 of the		
speed specified in 2.1.8, Part 1 of the Rules at the ship's full	· · · ·	
loaded draught, whichever is smaller, may be regarded as a	whichever is smaller, may be regarded as a navigable speed.	
navigable speed.		

## Guidance for Marine Pollution Prevention Systems Part 9 Chapter 5 5.3.4

Correction	Present	Note
The wording "deemed appropriate by the Society" specified in 5.3.4-2-of, Part 9 of the Rules for High Speed Craft means to be in accordance with the following. In the case of a single waterjet propulsion system fitted onboard the ship, however, the system is to be subject to special consideration by the Society:	in 5.3.4-2 of Part 9 means to be in accordance with the following. In the case of a single waterjet propulsion system fitted onboard the ship, however, the system is to be subject to	

# Guidance for the Survey and Construction of Passenger Ships Part 2 Chapter 1 1.1.3-1

Correction	Present	Note
1 For the application of the requirements of 1.1.3-3, Part	1 For the application of the requirements of 1.1.3-3, Part	
2 of the Rules, in addition to the requirements specified in		
B1.1.3-93 (except for (22)), Part B of the Guidance for the	B1.1.3-9 (except for (22)), Part B of the Guidance for the	Reference correction
Survey and Construction of Steel Ships, occasional surveys	Survey and Construction of Steel Ships, occasional surveys	
are to be in accordance with those specified in $(1)$ to $(7)$ below:	are to be in accordance with those specified in $(1)$ to $(7)$ below:	
((1) to (7) are omitted.)	((1) to (7) are omitted.)	

## Guidance for the Survey and Construction of Passenger Ships Part 3 Chapter 3 3.2.1-1

Correction		Present		Note
1	Compressive buckling strength at the midship part of	1	Compressive buckling strength at the midship part of	Reference correction
-	having long multi-deckhouses on strength deck is to be	ships ł	naving long multi-deckhouses on strength deck is to be	
in ac	cordance with the follows:	in acco	ordance with the follows:	
(1)	The requirements of <b>3.3.1-1<del>, Part 3</del></b> of the Rules are	(1)	The requirements of 3.3.1-1, Part 3 of the Rules are	
	to be complied with.		to be complied with.	
(2)	The application of the compressive buckling strength	(2)	The application of the compressive buckling strength	
	of the deck which requires the examination specified		of the deck which requires the examination specified	
	in 3.1.1 of the Rules and all shell platings, decks,		in 3.1.1 of the Rules and all shell platings, decks,	
	superstructure side platings and plate members of		superstructure side platings and plate members of	
	longitudinal bulkhead which is located below the		longitudinal bulkhead which is located below the	
	deck and contribute to the longitudinal strength,		deck and contribute to the longitudinal strength,	
	compressive buckling, torsional buckling of its		compressive buckling, torsional buckling of its	
	longitudinal stiffeners and compressive buckling		longitudinal stiffeners and compressive buckling	
	strength of web are to be in accordance with the		strength of web are to be in accordance with the	
	requirements in Annex 5.3, Part 1, Part C of the		requirements in Annex 5.3, Part 1, Part C of the	
	Rules for the Survey and Construction of Steel		Rules for the Survey and Construction of Steel	
	Ships. In this case, the determination of moment of		Ships. In this case, the determination of moment of	
	inertia for the hull cross section is to be in		inertia for the hull cross section is to be in	
	accordance with the requirements in $An 3.1.1-1(2)_{\overline{7}}$		accordance with the requirements in 3.1.1-1(2) of the	
	Annex 5.3, Part 1, Part C of the Rules, except for		Rules, except for proviso. And, the minimum value of	
	proviso. And, the minimum value of the compressive		the compressive stress of members specified in 5.3.2,	
	stress of members specified in 5.3.2, Part 1, Part C		Part 1, Part C of the Rules for the Survey and	
	of the Rules for the Survey and Construction of		Construction of Steel Ships needs not to be taken	

	Steel Ships needs not to be taken 30/K (N/mm <sup>2</sup> ),		30/K (N/mm <sup>2</sup> ), hereinafter K is the material factor	
	hereinafter $K$ is the material factor and is in		and is in accordance with the requirements in 5.2.1-	
	accordance with the requirements in 5.2.1-1(1),		1(1), Part 3 of the Rules. Where, however,	
	Part 3 of the Rules. Where, however, longitudinal		longitudinal plate member that compressive	
	plate member that compressive buckling strength is		buckling strength is not enough and which is	
	not enough and which is considered to give no		considered to give no contribution to the longitudinal	
	contribution to the longitudinal strength is located		strength is located above the strength deck, the	
	above the strength deck, the sagging moment which		sagging moment which arises under navigation is to	
	arises under navigation is to be in accordance with the		be in accordance with the following requirements in	
	following requirements in (a) and (b).		(a) and (b).	
	(a) The sub-paragraph (2) is to be applied only		(a) The sub-paragraph (2) is to be applied only	
	considering frame members, provided the		considering frame members, provided the	
	longitudinal plate member that compressive		longitudinal plate member that compressive	
	buckling strength is not enough and which is		buckling strength is not enough and which is	
	considered to give no contribution to the		considered to give no contribution to the	
	longitudinal strength is removed from inclusion		longitudinal strength is removed from inclusion	
	member of hull cross section modulus and		member of hull cross section modulus and	
	moment of inertia.		moment of inertia.	
	(b) Frame members may be in accordance with the		(b) Frame members may be in accordance with the	
	requirements in <b>3.1.1-1(2)(b)</b> of the Rules.		requirements in <b>3.1.1-1(2)(b)</b> of the Rules.	
(3)	Where an approval by the Society is obtained,			
	buckling strength may be examined by other method	(3)	Where an approval by the Society is obtained,	
	which is specially considered, notwithstanding the		buckling strength may be examined by other method	
l	provisions of (1) and (2).		which is specially considered, notwithstanding the	
			provisions of (1) and (2).	

# Guidance for the Survey and Construction of Passenger Ships Part 3 Chapter 7 7.4.3

Correction	Present	Note
"Fail-safe" specified in 7.4.3-1, Part 3 inof the Rules	"Fail-safe" specified in 7.4.3-1, Part 3 in the Rules	Wording correction
means the system which does not misunderstand that the side	means the system which does not misunderstand that the side	,, or any correction
door has been closed even if the display unit is out of order	door has been closed even if the display unit is out of order	
by wire disconnection. For example, lamp of the door is turn	by wire disconnection. For example, lamp of the door is turn	
on in the closing condition and turn off in the opening or	on in the closing condition and turn off in the opening or	
abnormal condition.	abnormal condition.	

# Guidance for the Survey and Construction of Passenger Ships Part 4 Chapter 2 2.3.2-3

Correction	Present	Note
3 The permeability of the cargo area where vehicles or	3 The permeability of the cargo area where vehicles or	
container and others are loaded is to be given in accordance	container and others are loaded is to be given in accordance	
with Table C2.3.2, corresponding to the draughts specified	with Table C2.3.2, corresponding to the draughts specified	Reference correction
in 2.1.10 to 2.1.12, Part 41 of the Rules. Vehicles and	in 2.1.10 to 2.1.12, Part 4 of the Rules. Vehicles and	
containers are to be treated as non-watertight.	containers are to be treated as non-watertight.	

## Guidance for the Survey and Construction of Passenger Ships Part 4 Chapter 2 2.5.1-2

Correction	Present	Note
2 In addition to the requirements in -1 above, stability computers for passenger ships contracted for construction on	2 In addition to the requirements in -1 above, stability computers for passenger ships contracted for construction on	Reference correction
or after 1 July 2018 are to comply with the following requirements. In ships which have an onboard stability	or after 1 July 2018 are to comply with the following requirements. In ships which have an onboard stability	
computer and shore-based support, such software need not	computer and shore-based support, such software need not	
be identical. Unless otherwise specified, stability computers	be identical. Unless otherwise specified, stability computers	
are to comply with the requirements in Annex U1.2.2	are to comply with the requirements in Annex U1.2.2	
"GUIDANCE FOR STABILTY COMPUTER", Part U of	"GUIDANCE FOR STABILTY COMPUTER", Part U of	
the Guidance for the Survey and Construction of Steel Ships.	the Guidance for the Survey and Construction of Steel Ships.	
((1) and (2) are omitted.)	((1) and (2) are omitted.)	
(1) and (2) are characterial (3) Computational accuracy of program	(3) Computational accuracy of program	
The computational accuracy of the program for the	The computational accuracy of the program for the	
particular ship is to be verified so that the calculation	particular ship is to be verified so that the calculation	
results are within the acceptable tolerances specified	results are within the acceptable tolerances specified	
in 1.2.3-1 or <u>1.2.3</u> -2, Annex U1.2.2 "GUIDANCE FOR STABILITY COMPUTER", Part U of the	in 1.2.3-1 or -2, Annex U1.2.2 "GUIDANCE FOR STABILITY COMPUTER", Part U of the Guidance	
Guidance for the Survey and Construction of Steel	for the Survey and Construction of Steel Ships as	
Ships as applicable. Such calculation is to be made	applicable. Such calculation is to be made by using	
by using actual ship data for at least three damage	actual ship data for at least three damage cases, each	
cases, each of them associated with at least three	of them associated with at least three loading	
loading conditions which are selected from the ship's	conditions which are selected from the ship's	
approved stability information booklet. Output of the software is to be compared with results of	approved stability information booklet. Output of the software is to be compared with results of	
software is to be compared with results of	sonware is to be compared with results of	

	corresponding load/damage case in the approved damage stability booklet or an alternative independent software source.		corresponding load/damage case in the approved damage stability booklet or an alternative independent software source.	
(4)	Approval of softwareApproval of software is to comply with 1.2.4, AnnexU1.2.2"GUIDANCEFORSTABILITY			
	<b>COMPUTER", Part U of the Guidance for the</b> <b>Survey and Construction of Steel Ships.</b> Approval of type 4 (SRtP) software is for stability only.	(4)	Approval of software Approval of software is to comply with 1.2.4, Annex U1.2.2 "GUIDANCE FOR STABILITY COMPUTER", Part U of the Guidance for the Survey and Construction of Steel Ships. Approval of type 4 (SRtP) software is for stability only.	

## Guidance for the Survey and Construction of Passenger Ships Part 4 Chapter 4 4.3.2-2

Correction	Present	Note
2 In preceding -1, Fig.4.4.3.2-1 is to be drawn in order	2 In preceding -1, Fig.4.4.3.2-1 is to be drawn in order	Reference correction
to confirm that <i>GM</i> in service is greater than <i>GM</i> required by	to confirm that GM in service is greater than GM required by	
intact stability.	intact stability.	

## Guidance for the Survey and Construction of Passenger Ships Part 4 Chapter 4 Fig.4.3.2-1

	Correction	Present	Note
Fig.4.4.3.2-1	Allowable GM Curve	Fig.4.4.3.2-1 Allowable GM Curve	Reference correction
Image: A state of the state	<ul> <li>GM curves required for damage conditions</li> <li>GM curves in service conditions</li> <li>Light weight condition</li> </ul>	GM Curves required for damage conditions GM Curves in service conditions ** Light weight condition	

### Guidance for the Survey and Construction of Passenger Ships Part 6 Chapter 2 2.3.3-3

Correction	Present	Note
Society" in 2.3.3(3), Part 6 of the Rules means Annex	<b>3</b> The wording "to be deemed appropriate by the Society" in 2.3.3(3), Part 6 of the Rules means Annex H3.3.3-3, Part H of the Guidance for the Survey and	
and Construction of <u>Steel</u> Ships.	Construction of Ships.	

### Guidance for the Survey and Construction of Passenger Ships Annex 4-1 1.4-1

Correction	Present	Note
analysing the damage stability following any real flooding	1 The system should utilize software capable of analysing the damage stability following any real flooding	
(see 1.1-3, Annex 4-1 of the Guidance).	casualty including multi-compartment, non-linked breaches (see 1.1.3).	

## Guidance for the Survey and Construction of Passenger Ships Annex 4-3 1.4-1

Correction	Present	Note
1 The system should utilize software (see 1.1- <u>3, Annex</u> <u>4-3 of the Guidance</u> ) capable of analysing the damage stability following any real flooding casualty including multi- compartment, non-linked breaches.	of analysing the damage stability following any real flooding	Reference correction

# Guidance for the Survey and Construction of Passenger Ships Annex 7-1 Table 7-1-A1

	Correction	Present	Note
	Table 7-1-A1 Interpret	ation of SOLAS II-2	Wording correction
Numb	er SOLAS	Interpretation	wording correction
5.3.2.2	Combustible materials used on the surfaces and linings specified in paragraph 3.2.1 <u>shall have a</u> <u>calorific value not exceeding 45MJ/m<sup>2</sup> of the area</u> <u>for the thickness used.</u> * The requirements of this paragraph are not applicable to the surfaces of furniture fixed to linings or bulkheads.	*: The fire retardant veneers specified in R5.3.2-2, Part R of the Rules <u>Guidance</u> for the Survey and Construction of Steel Ships, whose thickness is not more than 1 <i>mm</i> , are considered to be corresponding this regulation.	
7.5.3	There shall be installed throughout each separate zone, whether vertical or horizontal, in all accommodation and service spaces and, <u>where it is</u> <u>considered necessary by the Administration*1</u> , in control stations, except <u>spaces which afford no</u> <u>substantial fire risk*2</u> such as void spaces, sanitary spaces, etc., <u>either*3</u> : .1 a fixed fire detection and fire alarm system so installed and arranged as to detect the presence of fire in such spaces and providing smoke detection in corridors, stairways and escape routes within accommodation spaces. Detectors fitted in cabins, when activated, shall also be capable of emitting, or cause to be emitted, an audible alarm within the space where they are located; or .2 an automatic sprinkler, fire detection and fire alarm system of an approved type complying with the relevant requirements of the Fire Safety Systems Code and so installed and arranged as to protect such spaces and, in addition, a fixed fire detection and fire alarm system and so installed and arranged as to provide smoke detection in corridors, stairways and escape routes within accommodation spaces.	<ul> <li>*1: The control stations which the crews are not always stationed (steering room is generally considered as the space which crews are always stationed) and the cargo spaces which are usually inaccessible (the cargo spaces are to be provided with fire detection) are applicable to the case.</li> <li>*2: "Spaces which afford no substantial fire risk" are to include deckhouses and boatswain's store which are separated from accommodation spaces (the spaces which are separated from accommodation space by cargo space, special category space or machinery space, or the spaces which main vertical zones are installed in the boundary between accommodation space at all). And, "sanitary space" means lavatories, baths, showers, small laundry rooms, etc.</li> <li>*2: Storage rooms for gas bottles of gaseous fuel systems and gas welding equipments where complying with the provisions of R4.3.1-3 or R4.3.2-4. Part R of the Guidance for the Survey and Construction of Steel Ships, may be regarded as those on open deck and are to be treated as the exclusion from application of regulation II-2/7.5.3.</li> <li>*3: Where "either system" is installed, either one system is to be installed in one horizontal zone (the horizontal zone defined by interpretation of regulation II-2/9.2.3.2) without being mixed regulation II-2/7.5.3.</li> <li>*3: The effective automatic sprinkler system and smoke detection system are to be installed in the whole area of the</li> </ul>	

		atrium.	]
9.2.2.3.2	Note: To be applied to <b>#Table 9.1</b> to <b>9.2</b> , as		
Note	appropriate.		
1000	a Where adjacent spaces are in the same numerical		
	category and superscript "a" appears, a bulkhead or		
	deck between such spaces <u>need not be fitted</u> <sup>*21</sup> if	*21: If bulkheads or decks are installed in these spaces, these	
	deemed unnecessary by the Administration. For	are to be of "C" class boundaries.	
	example, in category (12) a bulkhead not be	are to be of the tenass boundaries.	
	required between a galley and its annexed pantries		
	provided the pantry bulkhead and decks maintain		
	the integrity of the galley boundaries. A bulkhead is,		
	however, required between a galley and machinery		
	space even though both spaces are in category (12).		
	b The ship's side, to the waterline in the lightest		
	seagoing condition, superstructure and deckhouse		
	sides situated below and adjacent to <i>liferafts</i> <sup>*22</sup> and		
	evacuation sides may be reduced to " $A-30$ ".	*22: These are to include not only liferafts but also lifeboats.	
	c Where public toilets are installed completely	22. These are to menade not only menals out also mecodus.	
	within the stairway enclosure, the public toilet		
	bulkhead within the stairway enclosure can be of		
	"B" class integrity.		
	d <u>Where spaces of category (6), (7), (8) and (9)</u>		
	are located completely within the outer perimeter	*23: If the perimeter is arranged at the inside (this	
	of the assembly station <sup>*23</sup> , the bulkheads of these	arrangement is not permitted to Ro-Ro passenger ships), fire	
	spaces are allowed to be of " $B-0$ " class integrity.	insulation value of boundaries of this perimeter may be	
	Control positions for audio, video and light	lighter than the value of outside perimeter.	
	installations may be considered as part of the		
	assembly station.		
9.2.2.4.2	Notes: To be applied to both Tables 9.3 and 9.4, as		
Note	appropriate.		
	a For clarification as to which applies, see		
	paragraph 2.2.2 and 2.2.5.		
	b Where spaces are of the same numerical		
	category and superscript b appears, <u>a bulkhead or</u>	*3: If bulkheads and decks are installed in spite of being not	
	deck of the ratings shown in the table is only	required, these are to be of "C" class boundaries.	
	required when the adjacent spaces are for a		
	different purpose <sup>*3</sup> , (e.g. in category (9)). A galley		
	next to a galley does not require a bulkhead, but a		
	galley next to a paint room requires an "A-0"		

	bulkhead.		
	c <u>Bulkheads</u> separating the wheelhouse and	*4: A navigation locker that can only be accessed from the	
	chartroom from each other may have a "B-0"	wheelhouse is to be considered as a control station, and Note	
	rating.*4 No fire rating is required for those	c may be applied.	
	partitions separating the navigation bridge and the		
	safety centre when the latter is within the navigation		
	bridge.		
	d See paragraphs 2.2.4.2.3 and 2.2.4.2.4.		
	e For the application of Regulation 2.2.1.1.2,		
	"B-0" and "C", where appearing in <b><u>+</u>Table 9.3</b> , shall		
	be read as "A-0".		
	f Fire insulation need not be fitted if the	*5: See the definitions of (10) of regulation II-2/9.2.2.3.2.	
	machinery space of category (7), in the opinion of		
	the Administration, has little or no fire risk. <sup>*5</sup>		
	g Ships constructed before 1 July 2014 shall		
	comply, as a minimum, with the previous		
	requirements applicable at the time the ship was		
	constructed, as specified in regulation 1.2.		
	* Where an asterisk appears in the tables, the		
	division is required to be of steel or other equivalent		
	material, but is not required to be of "A" class		
	standard. However, where a deck, except in a		
	category (10) space, is penetrated for the passage of		
	electric cables, pipes and vent ducts, such		
	penetrations should be made tight to prevent the		
	passage of flame and smoke. Divisions between		
	control stations (emergency generators) and open		
	decks may have air intake openings without means		
	for closure, unless a fixed gas fire-extinguishing		
	system is fitted. For the application of paragraph		
	2.2.1.1.2, an asterisk, where appearing in <b>#Table 9.4</b> ,		
	except for categories (8) and (10), shall be read as		
	" <i>A</i> -0".		
13.4.1.1	Where the space is below the bulkhead deck the two		
	means of escape shall consist of either:		
	.1 two sets of steel ladders*1 as widely separated	*1: Ladders having strings of flexible steel wire ropes are not	
	as possible, leading to doors in the upper part	acceptable in such escape routes.	
	of the space similarly separated and from		
	which access is provided to the appropriate	*2: A "safe position" can be any space, excluding lockers	
	lifeboat and liferaft embarkation decks. One	and storerooms irrespective of their area, cargo spaces and	

### Editorial Correction for Technical Rules and Guidance

		of these ladders shall be located within a	spaces where flammable liquids are stowed, but including		
		protected enclosure that satisfies regulation	special category spaces and ro-ro spaces, from which access		
		9.2.2.3, category (2) or regulation 9.2.2.4,	is provided and maintained clear of obstacles to the		
		category (4), as appropriate, from the lower	embarkation decks.		
		part of the space it serves to a <u>safe position</u> <sup>*2</sup>			
		outside the space. Self-closing fire doors of	*3: Refer to R13.4.1-10, Part R of the Guidance for the		
		the same fire integrity standards shall be fitted	Survey and Construction of Steel Ships.		
		in the enclosure. The ladder shall be fixed in			
		such a way that heat is not transferred into the	*4: Internal dimensions are to be interpreted as clear width,		
		enclosure through non-insulated fixing points.	so that a passage having diameter of 800 mm is available		
		The protected enclosure *3, *4 shall have	throughout the vertical enclosure, as shown in the Fig.		
		minimum internal dimensions of at least	R13.4.1-2, clear of ship's structure, with insulation and		
		800mm x 800mm, and shall have emergency	equipment, if any. The ladder within the enclosure can be		
		lighting provisions; or	included in the internal dimensions of the enclosure. When		
	.2	one steel ladder leading to a door in the upper	protected enclosures include horizontal portions their clear		
		part of the space from which access is	width is not to be less than 600 mm.		
		provided to the embarkation deck and			
		additionally, in the <i>lower part of the space</i> <sup>*5</sup>	*5: Machinery spaces may include working platforms and		
		and in a position well separated from the	passageways, or intermediate decks at more than one deck		
		ladder referred to, a steel door capable of	level. In such case, the lower part of the space is to be		
		being operated from each side and which	regarded as the lowest deck level, platform or passageway		
		provides access to a safe escape route from	within the space. At deck levels, other than the lowest one,		
		the lower part of the space to the embarkation	where only one means of escape other than the protected		
		deck.	enclosure is provided, self-closing fire doors are to be fitted		
			in the protected enclosure at that deck level. Smaller working		
			platforms in-between deck levels, or only for access to		
			equipment or components, need not be provided with two		
			means of escape.		
				· ·	

# Guidance for the Survey and Construction of Passenger Ships Annex 7-1 Table 7-1-B1

	Correction	Present	Note
	Table 7-1-B1 Interpreta	ations of FSS Code	Reference correction
Numb	er FSS Code	Interpretations	Reference correction
FSS	Each powder or carbon dioxide extinguisher shall have	*: Fire extinguishers are to be in accordance with requireme	
4.3.1.1	1 a capacity of at least 5kg and each foam extinguishers s	nts of R24.2.1, Part R of the Guidance for the Survey an	
	hall have a capacity of at least 9/. The mass of all porta	d Construction of Steel Ships. The types and specific use	
	ble fire extinguishers shall not exceed 23kg and they sh	of extinguishers are to be as given in Table R10.3.2-21, Pa	
	all have a fire-extinguishing capability at least equival	rt R of the Guidance for the Survey and Construction of	
	<u>ent*</u> to that of a 9l fluid extinguisher.	Steel Ships.	
FSS	Means shall be provided for automatically giving audib		
5.2.1.3	e		
	inguishing medium into any ro-ro spaces, container hol	f "conventional cargo spaces".	
	ds equipped with integral reefer containers, spaces acc		
	essible by doors or hatches, and other spaces in which p		
	ersonnel normally work or to which they have access. T		
	he audible alarms shall be located so as to be audible th		
	roughout the protected space with all machinery operati		
	ng, and the alarms should be distinguished from other a		
	udible alarms by adjustment of sound pressure or soun		
	d patterns. The pre-discharge alarm shall be automatica		
	lly activated (e.g., by opening of the release cabinet do		
	or). The alarm shall operate for the length of time need		
	ed to evacuate the space, but in no case less than 20 s b		
	efore the medium is released. <u>Conventional cargo spac</u>		
	$\underline{es^*}$ and small spaces (such as compressor rooms, paint		
	lockers, etc.) with only a local release need not be prov		
Dag	ided with such an alarm.		
FSS	Heat detectors shall be certified to operate before the te 3 mperature exceeds $78^{\circ}$ C but not until the temperature		
9.2.3.1	exceeds $54^{\circ}$ C, when the temperature is raised to those	*. The "term enderne limit" is to second ended the D20.2.2.1(2)	
	limits at a rate less than $1^{\circ}$ per <i>min</i> , when tested acc		
	ording to standards <i>EN</i> 54:2001 and <i>IEC</i> 60092-504.	n of Steel Ships for constant temperature type spot detector	
	Alternative testing standards may be used as determin	s and compensation type spot detectors.	
	ed by the Administration. At higher rates of temperatu	s and compensation type spot detectors.	
	re rise, the heat detector shall operate within <u>temperatu</u>		
	<u>re limits*</u> to the satisfaction of the Administration hav		
	ing regard to the avoidance of detector insensitivity or		
	oversensitivity.		
			]

# Guidance for the Survey and Construction of Passenger Ships Annex 7-2 1.1.2-1

Correction	Present	Note
1 In considering the design of stairway widths for each	1 In considering the design of stairway widths for each	Wording correction
individual case which allow for the timely flow of persons	individual case which allow for the timely flow of persons	vorung correction
evacuating to the muster stations from adjacent decks above	evacuating to the muster stations from adjacent decks above	
and below, the following calculation method should be used	and below, the following calculation method should be used	
(see Fig. 7-2-1 and <u>Fig.</u> 7-2-2):	(see Fig. 7-2-1 and 7-2-2):	
when joining two decks: $W = (N1+N2) \times 10$	when joining two decks: $W = (N1+N2) \times 10$	
mm;	mm;	
when joining three decks: $W = (N1+N2 + N2)$	when joining three decks: $W = (N1+N2 + N2)$	
$0.5 \times N3) \times 10 mm;$	$0.5 \times N3) \times 10 mm;$	
when joining four decks: $W = (N1+N2 + N2)$	when joining four decks: $W = (N1+N2 + N2)$	
$0.5 \times N3 + 0.25 \times N4) \times 10 mm;$	$0.5 \times N3 + 0.25 \times N4) \times 10 mm;$	
when joining five or more decks the width of the stairways	when joining five or more decks the width of the stairways	
should be determined by applying the above formula for four	should be determined by applying the above formula for four	
decks to the deck under consideration and to the consecutive	decks to the deck under consideration and to the consecutive	
deck,	deck,	
where:	where:	
W = the required tread width between handrails	W = the required tread width between handrails	
of the stairway.	of the stairway.	
The calculated value of "W" may be reduced where	The calculated value of "W" may be reduced where	
available landing area "S" is provided in stairways at the deck	available landing area "S" is provided in stairways at the deck	
level defined by subtracting "P" from "Z", such that:	level defined by subtracting "P" from "Z", such that:	
$P = S \times 3.0 \text{ persons}/m^2; P_{\text{max}} = 0.25 Z$	$P = S \times 3.0 \text{ persons}/m^2; P_{\text{max}} = 0.25 Z$	
where:	where:	
Z = the total number of persons expected to be	Z = the total number of persons expected to be	
evacuated on the deck being considered;	evacuated on the deck being considered;	
P = the number of persons taking temporary	P = the number of persons taking temporary	
refuge on the stairway landing, which may be	refuge on the stairway landing, which may be	
subtracted from "Z" to a maximum value of $P =$	subtracted from "Z" to a maximum value of $P =$	
0.25 Z (to be rounded down to the nearest whole	0.25 Z (to be rounded down to the nearest whole	
number); $G = 4 \frac{1}{2} \frac{1}$	number); $S_{1}$ the same $(m^{2})$ of the log line minor the	
$S =$ the surface area ( $m^2$ ) of the landing, minus the	$S =$ the surface area $(m^2)$ of the landing, minus the	
surface area necessary for the opening of doors	surface area necessary for the opening of doors	

and minus the surface area necessary for	and minus the surface area necessary for	
accessing the flow on stairs (see Fig.7-2-1);	accessing the flow on stairs (see Fig.7-2-1);	
N = the total number of persons expected to use	N = the total number of persons expected to use	
the stairway from each consecutive deck under	the stairway from each consecutive deck under	
consideration; N1 is for the deck with the largest	consideration; N1 is for the deck with the largest	
number of persons using that stairway; N2 is	number of persons using that stairway; N2 is	
taken for the deck with the next highest number	taken for the deck with the next highest number	
of persons directly entering the stairway flow	of persons directly entering the stairway flow	
such that when sizing the stairway width at each	such that when sizing the stairway width at each	
deck level, N1> N2> N3> N4 (see Fig.7-2-2).	deck level, $N1 > N2 > N3 > N4$ (see Fig.7-2-2).	
These decks are assumed to be on or upstream	These decks are assumed to be on or upstream	
(i.e. away from the embarkation deck) of the deck	(i.e. away from the embarkation deck) of the deck	
being considered.	being considered.	

## Guidance for the Survey and Construction of Inland Waterway Ships Part 1 Chapter 1 1.2.4

Correction	Present	Note
For ships for which surveys are to be carried out in	For ships for which surveys are to be carried out in	Reference correction
accordance with "HIDROVIA Parana - Paraguay" as the	accordance with "HIDROVIA Parana - Paraguay" as the	
"standards deemed appropriate by the Society" specified in	"standards deemed appropriate by the Society" specified in	
1.2.4-34, Part 21 of the Rules, the notation of "HIDROVIA"	1.2.4-3, Part 2 of the Rules, the notation of "HIDROVIA"	
is affixed to the Classification Characters.	is affixed to the Classification Characters.	

## Guidance for the Survey and Construction of Inland Waterway Ships Part 2 Chapter 2 2.1.4-1

Correction	Present	Note
1 At the surveys for fire extinguishing systems referred	1 At the surveys for fire extinguishing systems referred	Reference correction
to in 2.1.4-1(8), Part 2 of the Rules, the following	to in 2.1.4-1(8), Part 2 of the Rules, the following	
examinations are to be carried out. Where it is impractical to	examinations are to be carried out. Where it is impractical to	
carry out the examinations on board the ship, the examinations	carry out the examinations on board the ship, the examinations	
may be replaced with examinations carried out at the place of	may be replaced with examinations carried out at the place of	
manufacture under the presence of the Surveyor.	manufacture under the presence of the Surveyor.	
(1) Confirmation that the fire extinguishing system is	(1) Confirmation that the fire extinguishing system is	
installed according to the approved plans	installed according to the approved plans	
(2) Confirmation that a fire control plan is provided	(2) Confirmation that a fire control plan is provided	
(3) For fire extinguishing systems, fire detecting systems	(3) For fire extinguishing systems, fire detecting systems	
and manually operated call points:	and manually operated call points:	
(a) Fire main line including associated pumps	(a) Fire main line including associated pumps	
Confirmation that each fire main pump can be	Confirmation that each fire main pump can be	
operated so that one jet of water is produced	operated so that one jet of water is produced	
from the highest positioned hydrant and a	from the highest positioned hydrant and a	
hydrant which imposes the most strict condition	hydrant which imposes the most strict condition	
taking into account the distance from the fire	taking into account the distance from the fire	
pump, etc. and that the pressure at each hydrant	pump, etc. and that the pressure at each hydrant	
is to be not less than the minimum pressure	is to be not less than the minimum pressure	
required by 8.2.1-6(1), Part 9 of the Rules.	required by 8.2.1-6(1), Part 9 of the Rules.	
(b) Fixed carbon dioxide fire extinguishing system	(b) Fixed carbon dioxide fire extinguishing system	
i) For high pressure carbon dioxide fire-	i) For high pressure carbon dioxide fire-	
extinguishing systems:	extinguishing systems:	
1) Airtight tests of piping at the following	1) Airtight tests of piping at the following	

#### pressures:

For starting line and lines between manifolds and selection valves: 3.5 *MPa* For lines between selection valves and open ends: 1.0 *MPa* 

- 2) Testing piping by delivering air
- 3) Performance tests of alarm system
- ii) Test for vessels and their associated equipment are to be in accordance with the relevant requirements of **Part 7 of the Rules**, and additionally to comply with the following requirements:
  - 1) Shop test

The vessels are to be subjected to magnetic particle inspections for welded joints after completion of hydraulic tests, and then subjected to tightness tests at a pressure equal to the designed pressure together with their fitting.

- 2) On board test
- a) The pipes from the release valves on the distribution manifold to the nozzles are to be tested for tightness and the free flow of carbon dioxide gas (or air), after having been assembled on board. Test pressure is 1.0 *MPa*.
- b) The vessels are, after having been installed on board, to be subjected to operational tests with the charged condition of liquefied carbon dioxide gas to ensure no leakage of carbon dioxide gas and operations of the alarms, pressure gauges and liquid level indicators.

#### pressures:

For starting line and lines between manifolds and selection valves: 3.5 *MPa* For lines between selection valves and open ends: 1.0 *MPa* 

- 2) Testing piping by delivering air
- 3) Performance tests of alarm system
- ii) Test for vessels and their associated equipment are to be in accordance with the relevant requirements of **Part 7 of the Rules**, and additionally to comply with the following requirements:
  - 1) Shop test

The vessels are to be subjected to magnetic particle inspections for welded joints after completion of hydraulic tests, and then subjected to tightness tests at a pressure equal to the designed pressure together with their fitting.

- 2) On board test
  - a) The pipes from the release valves on the distribution manifold to the nozzles are to be tested for tightness and the free flow of carbon dioxide gas (or air), after having been assembled on board. Test pressure is 1.0 *MPa*.
  - b) The vessels are, after having been installed on board, to be subjected to operational tests with the charged condition of liquefied carbon dioxide gas to ensure no leakage of carbon dioxide gas and operations of the alarms, pressure gauges and liquid level indicators.

- c) The refrigerating plants are, after having been installed on board, to be subjected to an operational test with the charged condition of liquefied carbon dioxide gas including the pressure control function test.
- (c) Fixed high-expansion foam fire extinguishing systems
  - i) Testing piping by delivering water
  - ii) Performance tests of the system by delivering foam (the tests may be replaced with other equivalent tests at the discretion of the Surveyor)
  - iii) Tests specified in 26.3.5, Part R of the Rules for the Survey and Construction of Steel Ships, where deemed necessary by the Society.
- (d) Fixed pressure water-spraying fire extinguishing system
  - i) A pressure test for ordinarily pressurized parts of the system with a pressure 1.5 *times* the working pressure
  - ii) A performance test by spraying water
  - iii) Operation tests of relevant pumps
- (e) Fixed water spray system Confirmation of the water delivered by the remotest spray nozzle by way of performance test
- (f) Fire detecting system
  - i) Performance tests for one detector of each group (for on-board function tests of fixed fire detection and alarm systems installed in machinery spaces specified in 5.1.1-1, Part 9 of the Rules, refer to the test procedures shown in Annex B22.1.4-2(3)(i)i)<sub>72</sub> Part B

- c) The refrigerating plants are, after having been installed on board, to be subjected to an operational test with the charged condition of liquefied carbon dioxide gas including the pressure control function test.
- (c) Fixed high-expansion foam fire extinguishing systems
  - i) Testing piping by delivering water
  - ii) Performance tests of the system by delivering foam (the tests may be replaced with other equivalent tests at the discretion of the Surveyor)
  - iii) Tests specified in 26.3.5, Part R of the Rules for the Survey and Construction of Steel Ships, where deemed necessary by the Society.
- (d) Fixed pressure water-spraying fire extinguishing system
  - i) A pressure test for ordinarily pressurized parts of the system with a pressure 1.5 *times* the working pressure
  - ii) A performance test by spraying water
  - iii) Operation tests of relevant pumps
- (e) Fixed water spray system Confirmation of the water delivered by the remotest spray nozzle by way of performance test
- (f) Fire detecting system
  - i) Performance tests for one detector of each group (for on-board function tests of fixed fire detection and alarm systems installed in machinery spaces specified in 5.1.1-1, Part 9 of the Rules, refer to the test procedures shown in Annex B2.1.4-2(3)(i)i), Part B of

				1
	of the GuidanceRules for the Survey and		the Guidance for the Survey and	
	<b>Construction of Steel Ships</b> )		Construction of Steel Ships)	
	ii) A performance test of the alarm system		ii) A performance test of the alarm system	
	under loss of power or fault condition		under loss of power or fault condition	
	(g) Manually operated call points	(g)	Manually operated call points	
	An operation test		An operation test	
(4)	Inert gas systems	(4) Iner	rt gas systems	
	(a) Function test of equipment and control, safety,	(a)	Function test of equipment and control, safety,	
	and alarm devices		and alarm devices	
	(b) Airtight test	(b)	Airtight test	
	The airtight test pressure for pipes and joints in		The airtight test pressure for pipes and joints in	
	the inert gas supply line is, in principle, to be		the inert gas supply line is, in principle, to be	
	0.024 MPa. However, where the set pressure of		0.024 MPa. However, where the set pressure of	
	the pressure/vacuum valve is 0.024 MPa or more,		the pressure/vacuum valve is 0.024 MPa or more,	
	the set pressure of the pressure/vacuum valve is		the set pressure of the pressure/vacuum valve is	
	to be used.		to be used.	
	(c) Capacity test of inert gas blowers	(c)	Capacity test of inert gas blowers	
	It is to be verified through the use of inert gas or	( )	It is to be verified through the use of inert gas or	
	fresh air that the capacity of the inert gas blower		fresh air that the capacity of the inert gas blower	
	is equal to or greater than 1.25 times the		is equal to or greater than 1.25 times the	
	maximum design discharge capacity of the ship.		maximum design discharge capacity of the ship.	
	Where fresh air is used in the test, it is to be		Where fresh air is used in the test, it is to be	
	taken in from the area in proximity to the flue		taken in from the area in proximity to the flue	
	gas isolating valve. However, when a ship		gas isolating valve. However, when a ship	
	including its inert gas system is of the same		including its inert gas system is of the same	
	design as a ship which has already been tested,		design as a ship which has already been tested,	
	this test may be omitted.		this test may be omitted.	

# Guidance for the Survey and Construction of Inland Waterway Ships Part 2 Chapter 2 2.3.2-2

Correction	Present	Note
2 Annex <u>B22</u> .3.2-2, Part B of the <u>GuidanceRules</u> for	2 Annex B2.3.2-2, Part B of the Guidance for the	Reference correction
the Survey and Construction of Steel Ships gives the	Survey and Construction of Steel Ships gives the standard	
standard method for inclining tests stipulated in -1 above.	method for inclining tests stipulated in -1 above.	

### Guidance for the Survey and Construction of Inland Waterway Ships Part 2 Chapter 2 2.3.2-3

Correction	Present	Note
3 Among the particulars of stability stated in 2.3.2-1,	3 Among the particulars of stability stated in 2.3.2-1,	Reference correction
Part 2 of the Rules, the rolling period is to be determined by	Part 2 of the Rules, the rolling period is to be determined by	
the oscillation test. However, upon special approval by the	the oscillation test. However, upon special approval by the	
Society, the oscillation test may be dispensed with and the	Society, the oscillation test may be dispensed with and the	
rolling period may be determined by an approximate	rolling period may be determined by an approximate	
calculation stipulated in 2 <u>U2</u> .3.1-1(2), Part U of the	calculation stipulated in 2.3.1-1(2), Part U of the Guidance	
Guidance for the Survey and Construction of Steel Ships.	for the Survey and Construction of Steel Ships.	

### Guidance for the Survey and Construction of Inland Waterway Ships Part 2 Chapter 8 8.1.2-2

Correction	Present	Note
2 The wording "Remote monitoring devices for	2 The wording "Remote monitoring devices for	Wording correction
weardown of shaft deemed appropriate by the Society" in	weardown of shaft deemed appropriate by the Society" in	working correction
8.1.2-2(7), Part 2 of the Rules means devices approved by	8.1.2-2(7), Part 2 of the Rules means devices approved by	
the Society in accordance with Chapter 1, Part 7 of the	the Society in accordance with Chapter 1, Part 7 of	
Guidance for the Approval and Type Approval of	Guidance for the Approval of Materials and Equipment	
Materials and Equipment for Marine Use.	for Marine Use.	

### Guidance for the Survey and Construction of Inland Waterway Ships Part 2 Chapter 9 9.1.3-4

Correction	Present	Note
4 Approval of PMS	4 Approval of PMS	Reference correction
Conditions for approval of PMS are as follows:	Conditions for approval of PMS are as follows:	
(1) Machinery maintenance scheme	(1) Machinery maintenance scheme	
The machinery maintenance scheme for PMS is to	The machinery maintenance scheme for PMS is to	
specify maintenance works such as overhaul	specify maintenance works such as overhaul	
inspection, replacement of parts and general	inspection, replacement of parts and general	
inspection with their time schedule and/or running	inspection with their time schedule and/or running	
hours for each item of machinery and equipment	hours for each item of machinery and equipment	
including their parts. The scheme is to be prepared	including their parts. The scheme is to be prepared	
based on the inspection and maintenance intervals	based on the inspection and maintenance intervals	
recommended by the manufacturers of the	recommended by the manufacturers of the	
machinery and equipment with input from the	machinery and equipment with input from the	

experience and knowledge of the shipowner and ship management company. The inspection intervals for all items covered by PMS are generally planned not to exceed 6 *years*. However, for the items whose overhaul intervals are specified on the basis of their running hours, longer intervals may be accepted as long as the intervals are based on the manufacturer's recommendations. When the machinery maintenance scheme is changed, the amended scheme is to be submitted to the Society for approval.

(2) Survey Schedule Table

Survey intervals of the survey items are not to exceed those specified in the machinery maintenance scheme. The following items are to be generally opened and examined in the presence of the Surveyor.

- (a) Reduction gears for main propulsion
- (b) Flexible couplings for main propulsion
- (c) Other items deemed necessary by the Society.

When this survey schedule table is amended, the amended survey schedule table is to be submitted to the Society for approval.

(3) Machinery Maintenance Records

Machinery maintenance records are to include at least the following items. These records are to be retained on board the ship at all times.

- (a) Date of maintenance work
- (b) Signature by the Chief Engineer
- (c) Details of maintenance work and results
- (d) Total running hours (parts replacement intervals and overhaul intervals)
- (e) Names of parts replaced
- (f) Measuring data (including original design

experience and knowledge of the shipowner and ship management company. The inspection intervals for all items covered by PMS are generally planned not to exceed 6 *years*. However, for the items whose overhaul intervals are specified on the basis of their running hours, longer intervals may be accepted as long as the intervals are based on the manufacturer's recommendations. When the machinery maintenance scheme is changed, the amended scheme is to be submitted to the Society for approval.

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- (a) Date of maintenance work
- (b) Signature by the Chief Engineer
- (c) Details of maintenance work and results
- (d) Total running hours (parts replacement intervals and overhaul intervals)
- (e) Names of parts replaced
- (f) Measuring data (including original design

(e) Spare parts for important system components that

supplied in readily replaceable part units.

require specialist services for repairs are to be

dimensions and allowable tolerance) dimensions and allowable tolerance) (g) The condition of damage and repair method (g) The condition of damage and repair method (h) Results of visual examinations of lubricating oil (h) Results of visual examinations of lubricating oil conditions carried out through open-up conditions carried out through open-up examinations of the lubricating oil filters, etc. of examinations of the lubricating oil filters, etc. of crankpins, crank journals, thrust shafts and crankpins, crank journals, thrust shafts and bearings of reciprocating internal combustion bearings of reciprocating internal combustion engines used as main propulsion machinery (in engines used as main propulsion machinery (in cases where the principle components of such cases where the principle components of such engines were inspected through independent engines were inspected through independent open-up surveys conducted by chief engineers) open-up surveys conducted by chief engineers) Chief Engineer **Chief Engineer** (4) (4) The Chief Engineer in charge of PMS is to be a The Chief Engineer in charge of PMS is to be a person designated by the shipowner or ship person designated by the shipowner or ship management company. management company. Computer Computer (5) (5)Computers used for maintenance management Computers used for maintenance management system are to satisfy the following requirements system are to satisfy the following requirements specified in (a) through (f): specified in (a) through (f): (a) Computers are to be configured so that the (a) Computers are to be configured so that the effects of a system failure in part of the circuits effects of a system failure in part of the circuits or devices can be limited to a certain range as far or devices can be limited to a certain range as far as possible. as possible. (b) Each system component is to be protected against (b) Each system component is to be protected against overvoltages (electrical noise) likely to enter overvoltages (electrical noise) likely to enter through input/output terminals. through input/output terminals. (c) Central processing units and important peripheral (c) Central processing units and important peripheral devices are to have a self-monitoring function. devices are to have a self-monitoring function. (d) Important programmes and data are not to be (d) Important programmes and data are not to be deleted in the event of a temporary failure of the deleted in the event of a temporary failure of the external source of power supply. external source of power supply.

(e) Spare parts for important system components that require specialist services for repairs are to be supplied in readily replaceable part units.

(f) It is recommended that the software is approved	(f) It is recommended that the software is approved
in accordance with Annex B99.1.3-4	in accordance with Annex B9.1.3-4
"PROCEDURES FOR APPROVAL OF	<b>"PROCEDURES FOR APPROVAL OF</b>
PMS/CBM MANAGEMENT SOFTWARE",	PMS/CBM MANAGEMENT SOFTWARE",
Part B of the GuidanceRules for the Survey	Part B of the Guidance for the Survey and
and Construction of Steel Ships.	Construction of Steel Ships.

### Guidance for the Survey and Construction of Inland Waterway Ships Part 2 Chapter 9 9.1.4-5

Correction	Correction Present	
5 Approval of CBM	5 Approval of CBM	Reference correction
Conditions for approval of CBM are as follows:	Conditions for approval of CBM are as follows:	
(1) Machinery maintenance scheme for CBM	(1) Machinery maintenance scheme for CBM	
The machinery maintenance scheme for CBM is to	The machinery maintenance scheme for CBM is to	
include maintenance and management of the records	include maintenance and management of the records	
of machinery, equipment or associated components	of machinery, equipment or associated components	
subject to the scheme and specify the following (a) to	subject to the scheme and specify the following (a) to	
(d). When the machinery maintenance scheme is	(d). When the machinery maintenance scheme is	
changed, the amended scheme is to be submitted to	changed, the amended scheme is to be submitted to	
the Society for approval.	the Society for approval.	
(a) The functions of the condition monitoring system	(a) The functions of the condition monitoring system	
(b) Procedures related to condition monitoring and	(b) Procedures related to condition monitoring and	
diagnosis	diagnosis	
(c) Handling procedures in cases where an	(c) Handling procedures in cases where an	
abnormality is found (including procedures for	abnormality is found (including procedures for	
creating maintenance records and reporting to the	creating maintenance records and reporting to the	
Society)	Society)	
(d) Procedures for identifying defects and failures	(d) Procedures for identifying defects and failures	
that were not prevented by condition monitoring	that were not prevented by condition monitoring	
and diagnosis and for modifying the machinery	and diagnosis and for modifying the machinery	
maintenance scheme for CBM accordingly	maintenance scheme for CBM accordingly	
(2) Condition monitoring system	(2) Condition monitoring system	
The condition monitoring system is to satisfy the	The condition monitoring system is to satisfy the	
following requirements specified in (a) to (h). In	following requirements specified in (a) to (h). In	
cases where this system is modified, that modification	cases where this system is modified, that modification	

is to be approved by the Society.

- (a) The computer collects data from sensors or centralized machinery monitoring and control systems. The sensors are to be subject to the tests equivalent to those specified in 18.7.1, Part D of the Rules for the Survey and Construction of Steel Ships.
- (b) The hardware and software of the computer is to comply with 9.1.3-4(5)(a) to (e) and Chapters 1, 2 and 1 to (e) and Chapter 1, 2 and 3, Part X of the Rules for the Survey and Construction of Steel Ships.
- (c) In addition to (b), the software is to have condition monitoring function specified in Annex B99.1.3-4 "Procedures for approval of PMS/CBM management software", Part B of the GuidanceRules for the Survey and Construction of Steel Ships and be suited to diagnosing any deterioration of machinery, equipment or associated components on the basis of the data from the sensors or centralized machinery monitoring and control systems specified in (a). The software is to be suitable for diagnosing the condition of equipment or its components on the basis of independent or coalesced data, or their trends.
- (d) The condition monitoring system is to produce condition monitoring records.
- (e) In cases where condition monitoring and diagnosis are conducted on board ships, the condition monitoring system is to be such that no specialized knowledge of data analysis is required to use the system.
- (f) In cases where remote condition monitoring and

is to be approved by the Society.

- (a) The computer collects data from sensors or centralized machinery monitoring and control systems. The sensors are to be subject to the tests equivalent to those specified in 18.7.1, Part D of the Rules for the Survey and Construction of Steel Ships.
- (b) The hardware and software of the computer is to comply with 9.1.3-4(5)(a) to (e) and Chapters 1, 2 and 3, Part X of the Rules for the Survey and Construction of Steel Ships.

- (c) In addition to (b), the software is to have condition monitoring function specified in Annex B9.1.3-4 "Procedures for approval of PMS/CBM management software", Part B of the Guidance for the Survey and Construction of Steel Ships and be suited to diagnosing any deterioration of machinery, equipment or associated components on the basis of the data from the sensors or centralized machinery monitoring and control systems specified in (a). The software is to be suitable for diagnosing the condition of equipment or its components on the basis of independent or coalesced data, or their trends.
- (d) The condition monitoring system is to produce condition monitoring records.
- (e) In cases where condition monitoring and diagnosis are conducted on board ships, the

diagnosis are conducted (i.e. the data sent from the ship is analyzed remotely), the condition monitoring systems are to include a communication function to transfer the data collected by the sensors or centralized machinery monitoring and control systems specified in (a). Particular attention is to be paid to the cyber safety and security of said communication function. The system equipped on board is to be arranged to store the condition monitoring data in the event of loss of the communication function and transfer the data after the communication function is restored.

- (g) In cases where limiting parameters are modified, such modifications are to be identified.
- (h) The condition monitoring system is to include a method for backing up data at regular intervals.

(3) Maintenance management system

The maintenance management system is to have the maintenance records function specified in Annex B99.1.3-4 "Procedures for approval of PMS/CBM management software", Part B of the GuidanceRules for the Survey and Construction of Steel Ships. This function may be incorporated into the condition monitoring system specified in (2).

(4) Survey Schedule Table

Annual surveys are to be performed to confirm that the machinery maintenance scheme for CBM is being properly implemented. In cases where there is any damage to the machinery, equipment or associated components subject to the scheme or an abnormality is found in the results of condition monitoring and diagnosis, the shipowner (or ship management company) is to promptly report this to the Society and condition monitoring system is to be such that no specialized knowledge of data analysis is required to use the system.

- (f) In cases where remote condition monitoring and diagnosis are conducted (i.e. the data sent from the ship is analyzed remotely), the condition monitoring systems are to include a communication function to transfer the data collected by the sensors or centralized machinery monitoring and control systems specified in (a). Particular attention is to be paid to the cyber safety and security of said communication function. The system equipped on board is to be arranged to store the condition monitoring data in the event of loss of the communication function and transfer the data after the communication function is restored.
- (g) In cases where limiting parameters are modified, such modifications are to be identified.
- (h) The condition monitoring system is to include a method for backing up data at regular intervals.

(3) Maintenance management system

The maintenance management system is to have the maintenance records function specified in Annex B9.1.3-4 "Procedures for approval of PMS/CBM management software", Part B of the Guidance for the Survey and Construction of Steel Ships. This function may be incorporated into the condition monitoring system specified in (2).

(4) Survey Schedule Table

Annual surveys are to be performed to confirm that the machinery maintenance scheme for CBM is being properly implemented. In cases where there is any damage to the machinery, equipment or associated

			<u>, 1', , ,1 1 1 1'</u>	
	apply for an occasional survey if instructed to do so		components subject to the scheme or an abnormality	
	by the Society. When this survey schedule table is		is found in the results of condition monitoring and	
	amended, the amended survey schedule table is to be		diagnosis, the shipowner (or ship management	
(-)	submitted to the Society for approval.		company) is to promptly report this to the Society and	
(5)	Condition monitoring record		apply for an occasional survey if instructed to do so	
	Condition monitoring records are to include at least		by the Society. When this survey schedule table is	
	the following items.		amended, the amended survey schedule table is to be	
	(a) Condition monitoring data, including all data		submitted to the Society for approval.	
	since last open-up inspection, the original	(5)	Condition monitoring record	
	baseline data specified in $-6(2)$ and relevant		Condition monitoring records are to include at least	
	maintenance data.		the following items.	
	(b) Signature of the chief engineer.		(a) Condition monitoring data, including all data	
	(c) Contents and results of condition monitoring and		since last open-up inspection, the original	
	diagnosis (including criteria for judgment).		baseline data specified in $-6(2)$ and relevant	
(6)	Machinery maintenance record		maintenance data.	
	The machinery maintenance records are to include the		(b) Signature of the chief engineer.	
	items specified in 9.1.3-4(3) for the machinery,		(c) Contents and results of condition monitoring and	
	equipment or associated components subject to the		diagnosis (including criteria for judgment).	
	scheme. Those records are to be created by the chief	(6)	Machinery maintenance record	
	engineer and always to be available on board the ship.		The machinery maintenance records are to include the	
(7)	Chief engineer and other ship personnel		items specified in 9.1.3-4(3) for the machinery,	
	The machinery maintenance scheme for CBM is to be		equipment or associated components subject to the	
	implemented by a chief engineer designated by the		scheme. Those records are to be created by the chief	
	shipowner or ship management company. Access to		engineer and always to be available on board the ship.	
	the condition monitoring system and maintenance	(7)	Chief engineer and other ship personnel	
	management system is to be permitted only to the		The machinery maintenance scheme for CBM is to be	
	chief engineer and other ship personnel who are		implemented by a chief engineer designated by the	
	designated by the shipowner or ship management		shipowner or ship management company. Access to	
	company.		the condition monitoring system and maintenance	
	1 2		management system is to be permitted only to the	
			chief engineer and other ship personnel who are	
			designated by the shipowner or ship management	
			company.	

# Guidance for the Survey and Construction of Inland Waterway Ships Part 2 Chapter 9 9.1.4-6

	Correction	Present		Note
6	Surveys of CBM	6	Surveys of CBM	Wording correction
(1)	Installation survey	(1)	Installation survey	Wording correction
	It is to be confirmed in the presence of the Surveyor		It is to be confirmed in the presence of the Surveyor	
	that the equipment necessary for condition monitoring		that the equipment necessary for condition monitoring	
	and diagnosis, e.g. sensors, are installed and available		and diagnosis, e.g. sensors, are installed and available	
	in accordance with the machinery maintenance		in accordance with the machinery maintenance	
	scheme for CBM. In addition, a set of baseline		scheme for CBM. In addition, a set of baseline	
	readings is to be taken.		readings is to be taken.	
(2)	Implementation survey	(2)	Implementation survey	
	An implementation survey is to be carried out no		An implementation survey is to be carried out no	
	earlier than 6 months after the installation survey and		earlier than 6 months after the installation survey and	
	no later than the first periodical survey (i.e. the		no later than the first periodical survey (i.e. the	
	Annual Survey, Intermediate Survey or Special		Annual Survey, Intermediate Survey or Special	
	Survey specified in 1.1.2-2, Part 2 of the Rules). At		Survey specified in 1.1.2-2, Part 2 of the Rules). At	
	the implementation survey the following (a) to (f) are		the implementation survey the following (a) to (f) are	
	to be verified. At this implementation survey, a report			
	which specifies the implementation status of these	1 1		
	items is to be submitted to the Society. The baseline	items is to be submitted to the Society. The baseline		
	data are to be approved by the Society prior to the		data are to be approved by the Society prior to the	
	implementation survey		implementation survey	
	(a) Baseline data are incorporated in the condition monitoring system.		(a) Baseline data are incorporated in the condition monitoring system.	
	(b) Condition monitoring and maintenance are		(b) Condition monitoring and maintenance are	
	conducted in accordance with the machinery		conducted in accordance with the machinery	
	maintenance scheme for CBM (including a		maintenance scheme for CBM (including a	
	comparison of condition monitoring results to the		comparison of condition monitoring results to the	
	baseline data).		baseline data).	
	(c) Condition monitoring records and machinery		(c) Condition monitoring records and machinery	
	maintenance records are available on board the		maintenance records are available on board the	
	ship and the contents of said records are sufficient		ship and the contents of said records are sufficient	
	as an alternative to the open-up surveys specified		as an alternative to the open-up surveys specified	
	in Table 2.9.1, Part 2 <del>, Chapter 9</del> of the Rules.		in Table 2.9.1, Part 2, Chapter 9 of the Rules.	
	$\lim 1 abiv (2,7,1) 1 arv (2, Chapter 7) of the Kules.$		$\lim 1 abit 2.7.1, 1 att 2, Chapter 7 of the Kules.$	

- (d) The familiarity of the chief engineer and other designated personnel with the operation of the machinery maintenance scheme for CBM.
- (e) Records of any limiting parameters that have been modified.
- (f) In cases where there is any failure on machinery, equipment or associated components subject to the scheme, appropriate modification of the machinery maintenance scheme for CBM has been undertaken to address said failure.
- (3) Annual survey

An annual survey is to be carried out to verify that the scheme is being correctly operated and maintenance of machinery, equipment or associated components whose condition monitoring and diagnosis results were abnormal since the last survey has been carried out. At the annual survey the following (a) to (g) are to be verified. In cases where it is deemed necessary by the Surveyor (in consideration of the results of this verification) open-up examinations, function tests, confirmatory tests and readings of condition monitoring parameters may be required as far as practicable. In addition, condition monitoring records and maintenance records are to be available onboard ships.

- (a) The results of condition monitoring and diagnosis (including confirmation of maintenance records and general inspections) of machinery, equipment and associated components subject to the scheme are good.
- (b) Condition monitoring systems and maintenance management systems work effectively and are in good condition.
- (c) Records of any limiting parameters that have

- (d) The familiarity of the chief engineer and other designated personnel with the operation of the machinery maintenance scheme for CBM.
- (e) Records of any limiting parameters that have been modified.
- (f) In cases where there is any failure on machinery, equipment or associated components subject to the scheme, appropriate modification of the machinery maintenance scheme for CBM has been undertaken to address said failure.
- (3) Annual survey

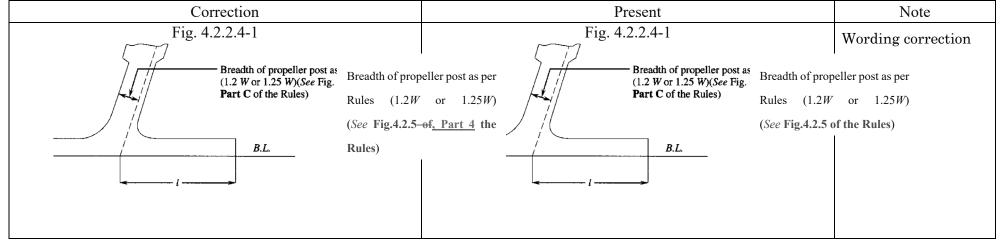
An annual survey is to be carried out to verify that the scheme is being correctly operated and maintenance of machinery, equipment or associated components whose condition monitoring and diagnosis results were abnormal since the last survey has been carried out. At the annual survey the following (a) to (g) are to be verified. In cases where it is deemed necessary by the Surveyor (in consideration of the results of this verification) open-up examinations, function tests, confirmatory tests and readings of condition monitoring parameters may be required as far as practicable. In addition, condition monitoring records and maintenance records are to be available onboard ships.

- (a) The results of condition monitoring and diagnosis (including confirmation of maintenance records and general inspections) of machinery, equipment and associated components subject to the scheme are good.
- (b) Condition monitoring systems and maintenance management systems work effectively and are in good condition.
- (c) Records of any limiting parameters that have

		-		
	been modified since the last survey		been modified since the last survey	
	(d) Written details of breakdowns or malfunctions		(d) Written details of breakdowns or malfunctions	
	(e) The familiarity of the chief engineer and other		(e) The familiarity of the chief engineer and other	
	designated personnel with the operation of the		designated personnel with the operation of the	
	machinery maintenance scheme for CBM.		machinery maintenance scheme for CBM.	
	(f) In cases where there is a failure of machinery,		(f) In cases where there is a failure of machinery,	
	equipment or associated components subject to		equipment or associated components subject to	
	the scheme, appropriate modification of the		the scheme, appropriate modification of the	
	machinery maintenance scheme for CBM has		machinery maintenance scheme for CBM has	
	been undertaken based to address said failure.		been undertaken based to address said failure.	
	(g) The following documents are available on board		(g) The following documents are available on board	
	ships		ships	
	i) Documents specified in -4(1) and (2)		i) Documents specified in -4(1) and (2)	
	ii) Maintenance instructions issued by		ii) Maintenance instructions issued by	
	manufacturers or shipyards		manufacturers or shipyards	
	iii) Condition monitoring records and initial		iii) Condition monitoring records and initial	
	obtained baseline data specified in -5(5)		obtained baseline data specified in -5(5)	
	iv) Machinery maintenance records specified in		iv) Machinery maintenance records specified in	
	-5(6)		-5(6)	
	v) Reference documents (trend investigation		v) Reference documents (trend investigation	
	procedures, etc.)		procedures, etc.)	
	vi) Records of changes to software systems and		vi) Records of changes to software systems and	
	parameters		parameters	
	vii) Sensors calibration records / certification /		vii) Sensors calibration records / certification /	
$(\mathbf{A})$	status	(1)	status	
(4)	Occasional Survey		Occasional Survey	
	Any damage to machinery, equipment or associated		Any damage to machinery, equipment or associated	
	components subject to the scheme or any abnormality	components subject to the scheme or any abnormality observed by the condition monitoring and diagnosis		
	observed by the condition monitoring and diagnosis			
	is to be reported to the Society immediately according		is to be reported to the Society immediately according to an approved machinery maintenance scheme for	
	to an approved machinery maintenance scheme for CBM. Upon review of the reports, the Society may		CBM. Upon review of the reports, the Society may	
	request an occasional survey if necessary. Any		request an occasional survey if necessary. Any	
	machinery part that is damaged and subsequently		machinery part that is damaged and subsequently	
	machinery part mat is damaged and subsequently		machinery part mat is damaged and subsequently	

replaced by a spare part is to be retained on board	replaced by a spare part is to be retained on board	
where possible until examined by the Surveyor.	where possible until examined by the Surveyor.	

### Guidance for the Survey and Construction of Inland Waterway Ships Part 4 Chapter 4 Fig. 4.2.2.4-1



### Guidance for the Survey and Construction of Inland Waterway Ships Part 7 Chapter 1 Table 7.1.1.5-1

	Correction Present		Present	Note
	Table 7.1.		Reference correction	
	Kind of auxiliary	Auxiliary machinery item	15	
Auxili	Auxiliary machinery for cooling systems	acket cooling water pumps, Piston cooling water ooling water (oil) pumps, Turbocharger cooling water pumps, Cooler cooling water pumps, Gener oil) pumps, Air compressors cooling water pumps	water pumps, Circulating rator engine cooling water	
Machi	•	Boiler water circulating pumps, Condensate pumps, Exhaust gas economizer feed pumps, Drain pumps, Feed water pumps		
main propul	Auxiliary machinery for fuel oil lsion systems	C.O. supply (service) pumps, F.O. transfer pump C.O. purifiers	os, Boiler burning pumps,	
	Auxiliary machinery for lubricating oil systems	Cam shaft L.O. pumps, Turbocharger L.O. pumps, Reduction gear L.O. pumps, Stern tube L.O. p ravitational circulation systems), L.O. purifiers	~ ~	

#### Editorial Correction for Technical Rules and Guidance

	Auxiliary machinery for hydraulic systems	Hydraulic oil pumps (pumps to supply hydraulic oil to hydraulic circuits for driving or controlling equipment relevant to main propulsion, e.g., controllable pitch propeller oil pumps)	
	Other auxiliary machinery	Boiler draught fans, Air compressors (excluding air compressors for emergency use), Distilling plants (when distillate is used for essential boilers), Others as deemed essential by the Society.	
	Pumps	Bilge pumps (including pumps for oil-water separators*), Ballast pumps, Fire pumps*	
Auxiliary	Steering-related auxiliary machinery	Steering engines, Side thrusters*, Stabilizers	
machinery for	Deck machinery	Windlasses, Mooring winches*, Hydraulic pumps used for windlasses, Hydraulic pumps used for mooring winches*	
and safety Ventila	Ventilating fans, blowers, etc.	Ventilating fans (installed in hazardous areas due to flammable gases or gases harmful to the health of personnel in engine room*, boiler room*) Others as deemed essential by the Society.	
Auxiliary machinery for cargo handling	Cargo handling machinery and gear	Hydraulic pumps used for Cargo handling appliances (items subject to "Rules for the Survey and Construction of Cargo Handling Appliances of Ships"), Hoisting machinery, Operating equipment	
nanding	Other auxiliary machinery	Others as deemed essential by the Society	
	Cargo handling equipment for specific Use	Unloaders (Shipborne units), Refrigerating machines for heat insulated containers, etc.	
Auxiliary	Public working equipment	Dredging equipment, Drilling machines, Pile-driving equipment, etc.	
machinery for specific	Fishing equipment	Winches, etc.	
use	Marine-products processing equipment	Canning/packing equipment, Conveyors, Ice-making machines, etc.	
	Equipment for specific operations	Equipment specifically designated by the Society	

# Guidance for the Survey and Construction of Inland Waterway Ships Part 7 Chapter 2 2.3.1-2

Correction	Present	Note
2 In cases where the diameter of crankpins or journals is less than the required diameter $d_c$ given in 2.3.1-1, Part 7	2 In cases where the diameter of crankpins or journals is less than the required diameter $d_c$ given in 2.3.1-1, Part 7	Reference correction
of the Rules, consideration will be given in each case on the	of the Rules, consideration will be given in each case on the	
basis of the stress levels in fillets, the torsional stress levels	basis of the stress levels in fillets, the torsional stress levels	
in crankpins and journals and the material of the crankshaft.	in crankpins and journals and the material of the crankshaft.	
In this connection, the stress levels in fillets are to be in	In this connection, the stress levels in fillets are to be in	
accordance with the following (1) or (2):	accordance with the following (1) or (2):	
(1) In cases where the torsional stress in crankpins and	(1) In cases where the torsional stress in crankpins and	
journals are evaluated without carrying out a forced	journals are evaluated without carrying out a forced	
vibration calculation including the stern shaftings:	vibration calculation including the stern shaftings:	
The diameter may be acceptable where the value of	The diameter may be acceptable where the value of	
equivalent stress amplitude $\sigma_e$ calculated by the	equivalent stress amplitude $\sigma_e$ calculated by the	
Annex <u>D22.3.1-2(1)</u> "GUIDANCE FOR	Annex D2.3.1-2(1) "GUIDANCE FOR	
CALCULATION OF CRANKSHAFT STRESS	CALCULATION OF CRANKSHAFT STRESS	
I", of Part D of the GuidanceRules for the Survey	I", Part D of the Guidance for the Survey and	
and Construction of Steel Ships is not more than the	Construction of Steel Ships is not more than the	
allowable stress $\sigma$ obtained from the formula below	allowable stress $\sigma$ obtained from the formula below	
with the coefficient shown in Table 7.2.3.1-2.	with the coefficient shown in <b>Table 7.2.3.1-2</b> .	
$\sigma = \sigma_a \cdot f_m \cdot f_s + \alpha \ (N/mm^2)$	$\sigma = \sigma_a \cdot f_m \cdot f_s + \alpha \ (N/mm^2) \text{ appropriate}$	
However, where deemed appropriate by the Society,	However, where deemed by the Society, the diameter	
the diameter in consideration of the allowable stress	in consideration of the allowable stress of crankshafts,	
of crankshafts, including fillet parts, that have been	including fillet parts, that have been hardened by surface treatment and the resultant stress distribution	
hardened by surface treatment and the resultant stress distribution may be acceptable.	may be acceptable.	
(2) In cases where the torsional stress in crankpins and	(2) In cases where the torsional stress in crankpins and	
journals are evaluated by carrying out a forced	journals are evaluated by carrying out a forced	
vibration calculation including the stern shaftings:	vibration calculation including the stern shaftings:	
The diameter may be acceptable where the value of	The diameter may be acceptable where the value of	
the acceptability factor Q calculated by the Annex	the acceptability factor Q calculated by the Annex	
D22.3.1-2(2) "GUIDANCE FOR CALCULATION	D2.3.1-2(2) "GUIDANCE FOR CALCULATION	
OF CRANKSHAFT STRESS II", of Part D of the	OF CRANKSHAFT STRESS II", Part D of the	
<b>Guidance</b> <u>Rules</u> for the Survey and Construction of	Guidance for the Survey and Construction of Steel	

Steel Ships complies with the following formula:	Ships complies with the following formula:	
<i>Q</i> ≥1.15	<i>Q</i> ≥1.15	

## Guidance for the Survey and Construction of Inland Waterway Ships Part 7 Chapter 2 2.3.1-3

Correction	Present	Note
3 In cases where the dimensions of crankwebs fail to most the requirements specified in $2.3 \pm 2(1)$ or (2). Bost 7		Reference correction
meet the requirements specified in 2.3.1-2(1) or (2), Part 7		
of the Rules, consideration will be given in accordance with	•	
(1) The dimensions of the apply the may be acceptable	the following: (1) The dimensions of the events were new he eccentable	
(1) The dimensions of the crankwebs may be acceptable in cases where the actual diameters of crankpins and		
1	1	
journals are not less than the required diameter $d_c$		
calculated by <b>2.3.1-1</b> , <b>Part 7</b> of the Rules by replacing <i>M</i> and <i>T</i> with those specified below.	replacing $M$ and $T$ with those specified below.	
In this case, the dimensions are to be within the		
following ranges;	following ranges;	
$0 \le q/r \le 1, -0.3 \le h/d \le 0.4, 8 \le d/r \le 27$	$0 \le q/r \le 1, -0.3 \le h/d \le 0.4, 8 \le d/r \le 27$	
$0 \le q/r \le 1$ , $0.5 \le n/a \le 0.1, 0 \le a/r \le 27$ $1.1 \le b/d \le 2.1, 0.2 \le t/d \le 0.56$	$0 \le q/r \le 1$ , $0.5 \le n/a \le 0.1$ , $0 \le a/r \le 27$ $1.1 \le b/d \le 2.1$ , $0.2 \le t/d \le 0.56$	
$M = 10^{-2} A P_{\text{max}} L \alpha_{KB} / 5$	$M = 10^{-2} A P_{\text{max}} L \alpha_{KB} / 5$	
$T = 10^{-2} B P_{mi} S \alpha_{KT} / 1.8$	$T = 10^{-2} B P_{mi} S \alpha_{KT} / 1.8$	
Where:	Where:	
$\alpha_{KB}$ : Stress concentration factor for bending, as		
specified below; $a_{1} = A 0 A f f f f f f$	specified below; T = -4.046666666	
$\alpha_{KB} = 4.84 f_1 f_2 f_3 f_4 f_5$	$\alpha_{KB} = 4.84 f_1 f_2 f_3 f_4 f_5$	
$f_1 = 0.420 + 0.160\sqrt{d/r - 6.864}$	$f_1 = 0.420 + 0.160\sqrt{d/r - 6.864}$	
$f_2 = 1 + 81 \left\{ 0.769 - \left( 0.407 - \frac{h}{d} \right)^2 \right\} \left( \frac{q}{r} \right) \left( \frac{r}{d} \right)^2$	$f_2 = 1 + 81 \left\{ 0.769 - \left( 0.407 - \frac{h}{d} \right)^2 \right\} \left(\frac{q}{r}\right) \left(\frac{r}{d}\right)^2$	
$f_3 = 0.285 \left(2.2 - \frac{b}{d}\right)^2 + 0.785$	$f_3 = 0.285 \left(2.2 - \frac{b}{d}\right)^2 + 0.785$	

$$f_{4} = 0.444 \left(\frac{d}{t}\right)^{1.4}$$

$$f_{5} = 1 - \left\{\left(\frac{h}{d} + 0.1\right)^{2} / \left(4\frac{t}{d} - 0.7\right)\right\}$$

$$\cdots (t/d \ge 0.36$$

$$f_{5} = 1 - 1.35 \left(\frac{h}{d} + 0.1\right)^{2}$$

$$(t/d \le 0.36 \text{ and } h/d \ge -0.1)$$

$$f_{5}^{-1}$$

$$\cdots (t/d \le 0.36 \text{ and } h/d \le -0.1)$$

$$\alpha_{KT}: \text{Stress concentration factor for torsion, as specified below;}$$

$$\alpha_{KT} = 1.75g_{1}g_{2}g_{3}$$

$$g_{1} = 31.6(0.152 - r/d)^{2} + 0.67$$

$$g_{2} = 1.04 + 0.317h/d$$

$$g_{3} = 1.31 - 0.233b/d$$

$$d: \text{ actual diameter of crankpin or journal (mm)}$$

$$h: \text{ overlap between crankpin and journal (mm)}$$

$$h: \text{ overlap between crankpin and journal (mm)}$$

$$h: \text{ overlap between trankpin and journal (mm)}$$

$$h: \text{ overlap between the requirements even after applying (1)$$

$$h: \text{ overlap between trankpin and journal (m) (1)$$

$$h: \text{ overla$$

forced vibration calculation including the stern shaftings:

The dimensions may be acceptable in cases where the value of the equivalent stress amplitude  $\sigma_e$  calculated by the Annex D22.3.1-2(1) "GUIDANCE FOR CALCULATION OF CRANKSHAFT STRESS I", Part D of the GuidanceRules for the Survey and Construction of Steel Ships is not more than the allowable stress  $\sigma$  obtained from the formula below with the coefficient shown in Table 7.2.3.1-2.

 $\sigma = \sigma_a \cdot f_m \cdot f_s + \alpha \ (N/mm^2)$ 

However, where deemed appropriate by the Society, the dimensions in consideration of the allowable stress of crankshafts, including fillet parts, that have been hardened by surface treatments and the resultant stress distribution may be acceptable.

(b) In cases where the torsional stresses in crankpins and journals are evaluated by carrying out a forced vibration calculation including the stern shaftings:

The dimensions may be acceptable where the value of the acceptability factor Q calculated by the Annex D22.3.1-2(2) "GUIDANCE FOR CALCULATION OF CRANKSHAFT STRESS II", Part D of the GuidanceRules for the Survey and Construction of Steel Ships complies with the following formula:  $Q \ge 1.15$ 

forced vibration calculation including the stern shaftings:

The dimensions may be acceptable in cases where the value of the equivalent stress amplitude  $\sigma_e$  calculated by the Annex D2.3.1-2(1) "GUIDANCE FOR CALCULATION OF CRANKSHAFT STRESS I", Part D of the Guidance for the Survey and Construction of Steel Ships is not more than the allowable stress  $\sigma$  obtained from the formula below with the coefficient shown in Table 7.2.3.1-2.

 $\sigma = \sigma_a \cdot f_m \cdot f_s + \alpha \ (N/mm^2)$ 

However, where deemed appropriate by the Society, the dimensions in consideration of the allowable stress of crankshafts, including fillet parts, that have been hardened by surface treatments and the resultant stress distribution may be acceptable.

(b) In cases where the torsional stresses in crankpins and journals are evaluated by carrying out a forced vibration calculation including the stern shaftings:

The dimensions may be acceptable where the value of the acceptability factor *Q* calculated by the Annex D2.3.1-2(2) "GUIDANCE FOR CALCULATION OF CRANKSHAFT STRESS II", Part D of the Guidance for the Survey and Construction of Steel Ships complies with the following formula:

## Guidance for the Survey and Construction of Inland Waterway Ships Part 7 Chapter 2 2.3.2-1

Correction	Present	Note
1 The wording "maximum torque at the shrinkage fit" in 2.3.2-1(2), Part 7 of the Rules means, in principle, $M_{T_{\text{max}}}$	1 The wording "maximum torque at the shrinkage fit" in 2.3.2-1(2), Part 7 of the Rules means, in principle, $M_{Tmax}$	Reference correction
shown in 1.3.2-1 of the Annex D22.3.1-2(2) "GUIDANCE	shown in 1.3.2-1 of the Annex D2.3.1-2(2) "GUIDANCE	
FOR CALCULATON OF CRANKSHAFT STRESS II",	FOR CALCULATON OF CRANKSHAFT STRESS II",	
	Part D of the Guidance for the Survey and Construction	
Construction of Steel Ships.	of Steel Ships.	

## Guidance for the Survey and Construction of Inland Waterway Ships Part 7 Chapter 2 2.3.2-2

Correction	Present	Note
2 In cases where the dimensions of crankwebs fail to meet the requirements in 2.3.2-2(1), Part 7 of the Rules,	2 In cases where the dimensions of crankwebs fail to meet the requirements in 2.3.2-2(1), Part 7 of the Rules,	Reference correction
they may be acceptable provided that either the following (1)	they may be acceptable provided that either the following $(1)$	
or (2) is satisfied.	or (2) is satisfied.	
(1) In cases where the maximum torque at the shrinkage	(1) In cases where the maximum torque at the shrinkage	
fit is evaluated without carrying out a forced vibration	fit is evaluated without carrying out a forced vibration	
calculation including the stern shaftings:	calculation including the stern shaftings:	
$d_h^2 t P_m \ge CTD^2$	$d_h^2 t P_m \ge CTD^2$	
Where:	Where:	
<i>C</i> : 103 for 2-stroke cycle in-line engines	C: 103 for 2-stroke cycle in-line engines	
165 for 4-stroke cycle in-line engines	165 for 4-stroke cycle in-line engines	
$P_m$ : Surface pressure at shrinkage fit, as given by the following formula	$P_m$ : Surface pressure at shrinkage fit, as given by the following formula	
$P_m = Y\left\{\log_e K + \frac{1}{2}\left(1 - \frac{K^2}{r_s^2}\right)\right\}(1 - R^2)$	$P_m = Y\left\{\log_e K + \frac{1}{2}\left(1 - \frac{K^2}{r_s^2}\right)\right\}(1 - R^2)$	
$K = 0.9\sqrt{\frac{206\alpha}{Y} + 0.25}$	$K = 0.9\sqrt{\frac{206\alpha}{Y} + 0.25}$	
Other symbols are the same as those used in 2.3, Part	Other symbols are the same as those used in 2.3, Part	
7 of the Rules.	7 of the Rules.	
(2) In cases where the maximum torque at the shrinkage	(2) In cases where the maximum torque at the shrinkage	

fit is evaluated by carrying out a forced vibration calculation including the stern shaftings:	fit is evaluated by carrying out a forced vibration calculation including the stern shaftings:	
$\alpha \geq \frac{4 \times 10^3 S_R M_{T \max} \left(1 - \frac{R^2}{r_s^2}\right)}{\pi \mu E d_h^2 t \left(1 - \frac{1}{r_s^2}\right) \left(1 - R^2\right)}$	$\alpha \geq \frac{4 \times 10^3 S_R M_{T \max} \left(1 - \frac{R^2}{r_s^2}\right)}{\pi \mu E d_h^2 t \left(1 - \frac{1}{r_s^2}\right) \left(1 - R^2\right)}$	
Where:	Where:	
$M_{T \text{max}}$ : Maximum torque at shrinkage fit, as	$M_{T \text{max}}$ : Maximum torque at shrinkage fit, as	
shown in 1.3.2-1 of the Annex D22.3.1-	shown in 1.3.2-1 of the Annex D2.3.1-	
<del>2(2) "GUIDANCE FOR</del>	2(2) "GUIDANCE FOR	
<b>CALCULATION OF CRANKSHAFT</b>	CALCULATION OF CRANKSHAFT	
STRESS II", Part D of the	STRESS II", Part D of the Guidance	
GuidanceRules for the Survey and	for the Survey and Construction of	
<b>Construction of Steel Ships</b> ( <i>N-m</i> )	Steel Ships (N-m)	
<i>E</i> : Modulus of longitudinal elasticity $(N/mm^2)$	E: Modulus of longitudinal elasticity $(N/mm^2)$	
Other symbols are the same as those used in 2.3, Part	Other symbols are the same as those used in 2.3, Part	
7 of the Rules.	7 of the Rules.	

# Guidance for the Survey and Construction of Inland Waterway Ships Part 7 Chapter 2 2.3.3

Correction	Present	Note
The wording "to be of sufficient strength" in 2.3.3-2, Part 7 of the Rules means to be in accordance with the	The wording "to be of sufficient strength" in 2.3.3-2, Part 7 of the Rules means to be in accordance with the	Reference correction
following (1) or (2):	following (1) or (2):	
(1) The thickness of shaft coupling flanges at the pitch	(1) The thickness of shaft coupling flanges at the pitch	
circle of the bolt holes is to be not less than the	circle of the bolt holes is to be not less than the	
diameter of the bolts determined by the formula in	diameter of the bolts determined by the formula in	
<b>2.3.3-1, Part 7 of the Rules</b> by using $440 N/mm^2$ for	<b>2.3.3-1, Part 7 of the Rules</b> by using $440 N/mm^2$ for	
$T_b$ . The radius at the fillet transition between the	$T_b$ . The radius at the fillet transition between the	
flange and shaft is to be not less than 0.08 times the	flange and shaft is to be not less than 0.08 times the	
shaft diameter. In this case, the fillet is not to be	shaft diameter. In this case, the fillet is not to be	
recessed in way of the bolt heads and nuts.	recessed in way of the bolt heads and nuts.	
(2) Detailed calculation sheets for the strength of	(2) Detailed calculation sheets for the strength of	
couplings (for the procedures and contents of these	couplings (for the procedures and contents of these	
calculations, the following (a) to (f) are to be	calculations, the following (a) to (f) are to be	
considered as standards) are to be submitted to the	considered as standards) are to be submitted to the	
Society for approval. In this case, it is to be verified	Society for approval. In this case, it is to be verified	
that the thickness of the coupling flange is larger	that the thickness of the coupling flange is larger	
than the diameter of the bolts determined by the	than the diameter of the bolts determined by the	
formula in 2.3.3-1, Part 7 of the Rules using the	formula in 2.3.3-1, Part 7 of the Rules using the	
tensile strength of the bolt material assumed to be equivalent to the tensile strength of the crankshaft	tensile strength of the bolt material assumed to be equivalent to the tensile strength of the crankshaft	
material.	material.	
(a) With the procedures specified in the following	(a) With the procedures specified in the following	
(a) with the procedures specified in the following (b) to (f), it is to be verified that the stress at the	(b) to (f), it is to be verified that the stress at the	
coupling is less than the allowable value. As the	coupling is less than the allowable value. As the	
stress value in this case, comparisons are to be	stress value in this case, comparisons are to be	
made by applying appropriate safety factors for	made by applying appropriate safety factors for	
yield points for bending stress, bending fatigue	yield points for bending stress, bending fatigue	
limits, yield points for torsional stress and	limits, yield points for torsional stress and	
torsional fatigue limits of the crankshaft	torsional fatigue limits of the crankshaft	
material considering four types of stress, such as	material considering four types of stress, such as	
the maximum bending stress, fluctuating	the maximum bending stress, fluctuating	

bending stress, the maximum torsional stress and fluctuating torsional stress.

- (b) The maximum bending moment and fluctuating bending moment of this portion are to be determined in accordance with the requirements specified in Annex D22.3.1-2(1) "GUIDANCE FOR CALCULATION OF CRANKSHAFT STRESS I", Part D of the Rule for the Survey and Construction of Steel Ships or Annex D2.3.1-2(2) "GUIDANCE FOR CALCULATION OF CRANKSHAFT STRESS II", Part D of the Guidance for the Survey and Construction of Steel Ships Meanmean torque of this portion is to be determined.
- (c) Torsional vibratory torque is to be determined by inverse operations from the allowable torsional vibratory stress value, which is to be taken as the fluctuating torque value.

By adding the fluctuating torque value, thus determined, to the mean torque value determined in the preceding sub-paragraph (b), the sum is to be taken as the maximum torque value. (When the torsional vibratory torque value at this portion can be accurately determined through detailed torsional vibration calculations, the calculated torque may be used as the torsional vibratory torque value.)

- (d) From the maximum bending moment and fluctuating bending moment of this portion, and the rigidity of the crankshaft, deflection angles of the crankshaft for respective cases are to be determined.
- (e) Bending moments in magnitudes that cause the

bending stress, the maximum torsional stress and fluctuating torsional stress.

- (b) The maximum bending moment and fluctuating bending moment of this portion are to be determined in accordance with the requirements specified in Annex D2.3.1-2(1) "GUIDANCE FOR CALCULATION OF CRANKSHAFT STRESS I", Part D of the Rule for the Survey and Construction of Steel Ships or Annex **"GUIDANCE** D2.3.1-2(2)FOR CALCULATION OF **CRANKSHAFT** STRESS II", Part D of the Guidance for the Survey and Construction of Steel Ships Mean torque of this portion is to be determined.
- (c) Torsional vibratory torque is to be determined by inverse operations from the allowable torsional vibratory stress value, which is to be taken as the fluctuating torque value.

By adding the fluctuating torque value, thus determined, to the mean torque value determined in the preceding sub-paragraph (b), the sum is to be taken as the maximum torque value. (When the torsional vibratory torque value at this portion can be accurately determined through detailed torsional vibration calculations, the calculated torque may be used as the torsional vibratory torque value.)

- (d) From the maximum bending moment and fluctuating bending moment of this portion, and the rigidity of the crankshaft, deflection angles of the crankshaft for respective cases are to be determined.
- (e) Bending moments in magnitudes that cause the

	coupling flange of the crankshaft to assume the		coupling flange of the crankshaft to assume the	
	respective deflection angles determined in the		respective deflection angles determined in the	
	preceding sub-paragraph (d) are to be		preceding sub-paragraph (d) are to be	
	determined, and the maximum bending stress and		determined, and the maximum bending stress and	
	fluctuating bending stress of this portion are to be		fluctuating bending stress of this portion are to be	
	determined by dividing above by the section		determined by dividing above by the section	
	modulus of the coupling flange.		modulus of the coupling flange.	
(f)	Respective tangential forces are to be determined	(f)	Respective tangential forces are to be determined	
	by dividing the maximum torque value and		by dividing the maximum torque value and	
	fluctuating torque value determined in the		fluctuating torque value determined in the	
	preceding sub-paragraph (c) by the diameter of		preceding sub-paragraph (c) by the diameter of	
	the crankshaft at the root of the coupling flange.		the crankshaft at the root of the coupling flange.	
	The maximum torsional stress and fluctuating		The maximum torsional stress and fluctuating	
	torsional stress are to be determined by dividing		torsional stress are to be determined by dividing	
	the above tangential forces by the sectional area		the above tangential forces by the sectional area	
	of the coupling flange (crankshaft diameter		of the coupling flange (crankshaft diameter	
	$\times \pi \times$ flange thickness) at the root, and by		$\times \pi \times$ flange thickness) at the root, and by	
	multiplying the stress concentration factor.		multiplying the stress concentration factor.	

# Guidance for the Survey and Construction of Inland Waterway Ships Part 7 Chapter 3 3.3.1

Correction	Present	Note
In the case of bevel gear, the wording "deemed	In the case of bevel gear, the wording "deemed	Reference correction
appropriate by the Society" in 3.3.1, Part 7 of the Rules	appropriate by the Society" in 3.3.1, Part 7 of the Rules	
means as follows:	means as follows:	
(1) The bending strength at the root sections of gear teeth	(1) The bending strength at the root sections of gear teeth	
and limiting tooth surface strength are to be according	and limiting tooth surface strength are to be according	
to ISO standards or as deemed appropriate by the	to ISO standards or as deemed appropriate by the	
Society. (2) $\sum_{i=1}^{n} \sum_{j=1}^{n} \sum_{i=1}^{n} \sum_{$	Society. (2) $\sum_{i=1}^{n} \sum_{j=1}^{n} \sum_{i=1}^{n} \sum_{$	
(2) Evaluation of the strength of the interior of gear teeth	(2) Evaluation of the strength of the interior of gear teeth	
may be required where deemed necessary by the Society. In such cases, the Vickers hardness ( <i>HV</i> ) of	may be required where deemed necessary by the Society. In such cases, the Vickers hardness ( <i>HV</i> ) of	
the interior of gear teeth is not to be less than the	the interior of gear teeth is not to be less than the	
value obtained from the following formula.	value obtained from the following formula.	
However, this requirement does not apply to bevel	However, this requirement does not apply to bevel	
gears for which the tip diameter (outer end) is	gears for which the tip diameter (outer end) is	
smaller than 1,100 mm:	smaller than 1,100 mm:	
If $\frac{z}{w} < 0.79$ then $\frac{z}{w}$ is to be taken as 0.79.	If $\frac{z}{w} < 0.79$ then $\frac{z}{w}$ is to be taken as 0.79.	
$HV = 1.11S_H p \left[ \frac{z}{w} - \frac{\left(\frac{z}{w}\right)^2}{\sqrt{1 + \left(\frac{z}{w}\right)^2}} \right]$	$HV = 1.11S_H p \left[ \frac{z}{w} - \frac{\left(\frac{z}{w}\right)^2}{\sqrt{1 + \left(\frac{z}{w}\right)^2}} \right]$	
HV: Vickers hardness	HV: Vickers hardness	
$S_H$ : Safety factor for contact stress is to comply with	$S_H$ : Safety factor for contact stress is to comply with	
the requirements in Annex D5.3.1	the requirements in Annex D5.3.1	
"CALCULATION OF STRENGTH OF	<b>"CALCULATION OF STRENGTH OF</b>	
ENCLOSED GEARS" 1.6.3-9 <u>1.6.3-9 of</u>	ENCLOSED GEARS" 1.6.3-9, Part D of the	
Annex 5.3.1, Part D of the Rules for the	Rules for the Survey and Construction of	
Survey and Construction of Steel Ships.	Steel Ships.	
<i>p</i> : Real hertzian stress ( <i>MPa</i> ). The upper limit of the value of <i>p</i> used in this calculation is to be	<i>p</i> : Real hertzian stress ( <i>MPa</i> ). The upper limit of the value of <i>p</i> used in this calculation is to be	
1,500 MPa.	1,500 MPa.	
$p = AS_c$	$p = AS_c$	
$p = n \sigma_c$	$p = ho_c$	

$S_c$ : Contact stress (MPa), to be calculated	$S_c$ : Contact stress (MPa), to be calculated	
according to <i>ISO 10300</i> standards.	according to ISO 10300 standards.	
A: If $S_c$ is calculated according to ISO 10300	A: If $S_c$ is calculated according to ISO 10300	
standards, then the coefficients are to be	standards, then the coefficients are to be	
determined, in consideration of analysis	determined, in consideration of analysis	
results, by the Society on a case by case	results, by the Society on a case by case	
basis. In addition, if $S_c$ is calculated	basis. In addition, if $S_c$ is calculated	
according to ISO 10300 standards, A is to be	according to ISO 10300 standards, A is to be	
taken as 1.32	taken as 1.32	
w: Half the hertzian contact width (mm), to be	w: Half the hertzian contact width (mm), to be	
calculated by the following formula:	calculated by the following formula:	
$w = \frac{p\rho_c}{56300}$	$w = \frac{p\rho_c}{56300}$	
$w = \frac{1}{56300}$	$w = \frac{1}{56300}$	
$\rho_1 \rho_2$	$\rho_1 \rho_2$	
$\rho_C = \frac{\rho_1 \rho_2}{\rho_1 + \rho_2}$	$\rho_C = \frac{\rho_1 \rho_2}{\rho_1 + \rho_2}$	
$\rho_1 = 0.5 d_{\nu n 1} \sin \alpha_n$	$\rho_1 = 0.5 d_{\nu n 1} \sin \alpha_n$	
$\rho_2 = 0.5 d_{\nu n 2} \sin \alpha_n$	$\rho_2 = 0.5 d_{\nu n 2} \sin \alpha_n$	
$d_{vn1} = d_{m1} \frac{\sqrt{1+u^2}}{u} \frac{1}{\cos^2 \beta_{vb}}$	$d_{vn1} = d_{m1} \frac{\sqrt{1+u^2}}{u} \frac{1}{\cos^2 \beta_{vb}}$	
$d_{m1}$ : Mean pitch diameter of pinion $(mm)$	$d_{m1}$ : Mean pitch diameter of pinion $(mm)$	
<i>u</i> : Gear ratio	<i>u</i> : Gear ratio	
$\beta_{vb} = \arcsin(\sin\beta_m \cos\alpha_n)$	$\beta_{vb} = \arcsin(\sin\beta_m \cos\alpha_n)$	
$\beta_m$ : Mean spiral angle	$\beta_m$ : Mean spiral angle	
$\alpha_n$ : Normal pressure angle	$\alpha_n$ : Normal pressure angle	
$d_{vn2} = u^2 d_{vn1}$	$d_{\nu n2} = u^2 d_{\nu n1}$	
z: Depth from teeth surface to evaluation point (mm)	z: Depth from teeth surface to evaluation point (mm)	

# Guidance for the Survey and Construction of Inland Waterway Ships Part 7 Chapter 4 4.2.4-3

Correction	Present	Note
<b>3</b> For ships of less than 30 <i>m</i> in length, the diameters of propeller shafts and stern tube shafts may be calculated using values given for $k_2$ in Table 7.4.3, <u>Part 7 of the Rules</u> , $k_3$ in Table 7.4.4, <u>Part 7 of the Rules</u> , $k_3$ in Table 7.4.2.4-1, <u>Part 7 of the Guidance</u> or $k_3$ in Table 7.4.2.4-2, <u>Chapter 4</u> , Part 7 of the <u>RulesGuidance</u> multiplied by 0.92. The allowable limit of the torsional vibration stress, however, is to comply with the following:	<b>3</b> For ships of less than 30 <i>m</i> in length, the diameters of propeller shafts and stern tube shafts may be calculated using values given for $k_2$ in Table 7.4.3, $k_3$ in Table 7.4.4, $k_3$ in Table 7.4.2.4-1 or $k_3$ in Table 7.4.2.4-2, Chapter 4, Part 7 of the Rules multiplied by 0.92. The allowable limit of the torsional vibration stress, however, is to comply with the following:	Reference correction
<ul> <li>(1) For propeller shafts and stern tube shafts made of carbon steels or low alloy steels which are effective at preventing corrosion by water, the allowable limit of the torsional vibration stress is to be calculated with the value for <i>Ck</i> given in <b>Table 7.6.1</b>, <b>Chapter 6, Part 7 of the Rules</b> equal to 0.45.</li> <li>(2) For propeller shafts made of carbon steels or low alloy steels which are not effective at preventing corrosion by water as well as propeller shafts made of stainless steels, the allowable limit of the torsional vibration stress is to be calculated using the values for <i>A</i>, <i>B and C</i> given in <b>Table 7.6.2.2-1</b>, <b>Part 7 of the Guidance</b> multiplied by 0.8.</li> </ul>	<ol> <li>For propeller shafts and stern tube shafts made of carbon steels or low alloy steels which are effective at preventing corrosion by water, the allowable limit of the torsional vibration stress is to be calculated with the value for <i>Ck</i> given in <b>Table 7.6.1</b>, <b>Chapter 6</b>, <b>Part 7 of the Rules</b> equal to 0.45.</li> <li>For propeller shafts made of carbon steels or low alloy steels which are not effective at preventing corrosion by water as well as propeller shafts made of stainless steels, the allowable limit of the torsional vibration stress is to be calculated using the values for <i>A</i>, <i>B and C</i> given in <b>Table 7.6.2.2-1</b> multiplied by 0.8.</li> </ol>	

# Guidance for the Survey and Construction of Inland Waterway Ships Part 7 Chapter 4 4.2.10-1

Correction	Present	Note
1 The wording "provisions specified elsewhere" in		Wording correction
4.2.10-1(1)(a)i), Part 7 of the Rules means the following (1)	4.2.10-1(1)(a)i), Part 7 of the Rules means the following (1)	
and (2) in principle:	and (2) in principle:	
(1) Shaft alignment calculations are to be carried out in		
accordance with the requirements in Annex 6.2.13	1	
"Calculation of Shaft Alignment", Part D of the	0	
Rules for the Survey and Construction of Stee	Rules for the Survey and Construction of Steel	
Ships.	Ships.	
(2) For improving the lubricating condition of the		
bearing, the following measures are to be taken:	bearing, the following measures are to be taken:	
(a) A lubricating oil inlet is to be provided at the af		
end of the bearing to ensure the forced circulation		
of the lubricating oil.	of the lubricating oil.	
(b) Either of the following devices to measure sterr		
tube bearing metal temperature at the aft end		
bottom along with high temperature alarms (with		
a preset value of 60 °C or below) is to be	-	
provided:	provided:	
i) Two or more temperature sensors embedded		
in the metal; or	in the metal; or	
ii) An embedded temperature sensor		
replaceable from inboard the ship, and a		
spare temperature sensor.	spare temperature sensor.	
In this case, the replacement of such sensors		
according to procedures submitted	0 1	
beforehand is to be demonstrated.	beforehand is to be demonstrated.	
(c) Low level alarms are to be provided for	-	
lubricating oil sump tanks.	lubricating oil sump tanks.	

### Guidance for the Survey and Construction of Inland Waterway Ships Part 7 Chapter 4 4.2.10-2

Correction	Present	Note
2 The wording "provisions specified elsewhere" in	2 The wording "provisions specified elsewhere" in	Wording correction
4.2.10-1(1)(b)ii), Part 7 of the Rules means the following (1)	4.2.10-1(1)(b)ii), Part 7 of the Rules means the following (1)	wording correction
and (2) in principle:	and (2) in principle:	
(1) Nominal bearing pressure, etc. calculated in	(1) Nominal bearing pressure, etc. calculated in	
accordance with Annex 6.2.13 "Calculation of Shaft	accordance with Annex 6.2.13 "Calculation of Shaft	
Alignment", Part D of the Rules for the Survey and	Alignment", Part D of the Rules for the Survey and	
Construction of Steel Ships are to be within the	Construction of Steel Ships are to be within the	
allowable limits specified in the Type Approval	allowable limits specified in the Type Approval	
Certificate.	Certificate.	
(2) The measures for lubricating condition specified in -	(2) The measures for lubricating condition specified in -	
1(2) are to be taken.	1(2) are to be taken.	

#### Guidance for the Survey and Construction of Inland Waterway Ships Part 7 Chapter 6 6.2.2-3

Correction	Present	Note
<b>3</b> For ships applying the requirements specified in 4.2.2,		Wording correction
· · · · · · · · · · · · · · · · · · ·	the value for $C_K$ specified in Table 7.6.1 is to be replaced by	
<b><u>Rules</u></b> is to be replaced by the value for $C_K$ specified in	the value for C <sub>K</sub> specified in Table7.6.2.2-2 when calculating	
Table7 Table 7.6.2.2-2, Part 7 of the Guidance when	the allowable limit of torsional vibration stress.	
calculating the allowable limit of torsional vibration stress.		

### Guidance for the Survey and Construction of Inland Waterway Ships Part 7 Chapter 6 6.2.2-4

Correction	Present	Note
4 For ships applying the requirements specified in 4.2.3,		Wording correction
the value for C <sub>K</sub> specified in Table7 Table 7.6.1, Part 7 of the	the value for $C_K$ specified in Table7.6.1 is to be replaced by	
<b><u>Rules</u></b> is to be replaced by the value for $C_K$ specified in	the value for C <sub>K</sub> specified in <b>Table7.6.2.2-2</b> when calculating	
Table7Table 7.6.2.2-2, Part 7 of the Guidance when	the allowable limit of torsional vibration stress.	
calculating the allowable limit of torsional vibration stress.		

## Guidance for the Survey and Construction of Inland Waterway Ships Part 7 Chapter 9 9.4.5-2

Correction	Present	Note
2 The wording "other appropriate non-destructive tests"	2 The wording "other appropriate non-destructive tests"	Reference correction
referred to in 9.4.5-8, Part 7 of the Rules means the following	referred to in 9.4.5-8, Part 7 of the Rules means the following	
(1) or (2):	(1) or (2):	
(1) The radiographic testing to be carried out in	(1) The radiographic testing to be carried out in	
accordance with ISO 17636. The criteria and others	accordance with ISO 17636. The criteria and others	
that are not specified in the ISO are to be in	that are not specified in the ISO are to be in	
accordance with 9.4.5, Part 7 of the Rules and this	accordance with 9.4.5, Part 7 of the Rules and this	
9.4.5-1. In cases of the radiographic testing using no	9.4.5-1. In cases of the radiographic testing using no	
radiograph film, the testing plan is to be submitted to	radiograph film, the testing plan is to be submitted to	
and approved by the Society, prior to the testing.	and approved by the Society, prior to the testing.	
(2) The ultrasonic testing to be carried out in accordance	(2) The ultrasonic testing to be carried out in accordance	
with 9.4.6, Part 7 of the Rules and 9.4.6-2 of this	with 9.4.6, Part 7 of the Rules and 9.4.6-2 of this	
Chapter. In this case, 1.1.2-2 of Annex M1.4.2-3(1)	Chapter. In this case, 1.1.2-2 of Annex M1.4.2-3(1)	
"Guidance for Non-destructive Inspections on	"Guidance for Non-destructive Inspections on	
Internal Imperfections of the Welded Joints of Hull	Internal Imperfections of the Welded Joints of Hull	
Constructions"Chapter 8, Part M of Guidancethe	Constructions", Part M of Guidance for the Survey	
<b><u>Rules</u></b> for the Survey and Construction of Steel	and Construction of Steel Ships is to be applied.	
Ships is to be applied.		

## Guidance for the Survey and Construction of Inland Waterway Ships Part 7 Chapter 11 11.10.1

	Correction	Present	Note
	Electric heaters provided in double bottom tanks and	Electric heaters provided in double bottom tanks and	Reference correction
d	eep tanks are to comply with the requirements specified in	deep tanks are to comply with the requirements specified in	
1	1.9.5-, Part 7 of the Rules.	11.9.5.	

## Guidance for the Survey and Construction of Inland Waterway Ships Part 7 Chapter 12 12.4.7-2

Correction	Present	Note
2 The wording "to the satisfaction of the Society"	2 The wording "to the satisfaction of the Society"	Wording correction
specified in 12.4.7-5, Part 7 of the Rules means to comply	specified in 12.4.7-5, Part 7 of the Rules means to comply	wording correction
with the requirements specified in the Appendix C1	with the requirements specified in the Appendix C1	
"Reference Data for Design", Part C of the Guidance for	"Reference Data for Design", Part C of the Guidance for	
the Survey and Construction of Steel Ships.	the Survey and Construction of Steel Ships.	

## Guidance for the Survey and Construction of Inland Waterway Ships Part 7 Chapter 15 15.6.1

Correction	Present	Note
Tank barges with double bottoms	Tank barges with double bottoms	Wording correction
In cases where tank barges with double bottoms use the	In cases where tank barges with double bottoms use the	
spaces underneath their cargo oil tanks for purposes other than	spaces underneath their cargo oil tanks for purposes other than	
holding cargo oil, the requirements specified in	holding cargo oil, the requirements specified in Chapter15,	
Chapter15Chapter 15, Part 7 of the Rules as well as the	Part 7 of the Rules as well as the following requirements	
following requirements specified in this15.6.1 are to be	specified in this <b>15.6.1</b> are to be complied with:	
complied with:	(1) Air pipes and sounding pipes provided in double	
(1) Air pipes and sounding pipes provided in double	bottoms may pass through cargo oil tanks. In this	
bottoms may pass through cargo oil tanks. In this	case, all pipe joints in such cargo oil tanks are to be	
case, all pipe joints in such cargo oil tanks are to be	welded joints of sufficient thickness according to the	
welded joints of sufficient thickness according to the	requirements of Table 7.10.6, Part 7 of the Rules.	
requirements of Table 7.10.6, Part 7 of the Rules.	Furthermore, consideration is to be given to piping	
Furthermore, consideration is to be given to piping	arrangements for the expansion and contraction of	
arrangements for the expansion and contraction of	the pipes.	
the pipes.	(2) Valve operating rods are not to pass through any part	
(2) Valve operating rods are not to pass through any part	subjected at all times to liquid head, such as the inner	
subjected at all times to liquid head, such as the inner	bottom plates of cargo tanks.	
bottom plates of cargo tanks.	(3) Notwithstanding the requirements of 15.6.8, Part 7	
(3) Notwithstanding the requirements of 15.6.8, Part 7	of the Rules, ballast pipes are not to pass through	
of the Rules, ballast pipes are not to pass through	any spaces within cargo oil tanks.	
any spaces within cargo oil tanks.		

# Guidance for the Survey and Construction of Inland Waterway Ships Part 7 Chapter 15 15.6.5

Correction	Present	Note
Piping systems to be connected to cargo oil piping are to be dealt with under the following requirements:	to be dealt with under the following requirements:	Reference correction
<ol> <li>Pumps and pipes in any piping systems connected to cargo oil pipes are to be dealt with in the same manner as those in cargo oil piping systems. However, for those piping systems specified in 15.6.3-4, 15.6.10-6, and 15.6.14-2, Part 7 of the Rules and item (2) below, this requirement may be dispensed with. Piping systems connected to cargo oil piping means those connected to cargo oil pipes, and those piping systems having openings thereto. Accordingly, hydraulic oil pipes for controlling cargo oil piping systems, for example, are not regarded as a piping system connected to the cargo oil piping.</li> <li>In cases where cargo oil piping systems:         <ul> <li>(a) Tank vent pipes</li> <li>The requirements in 35.2.7-72-3(2)(g) and -8;(h), Part R of the Rules for the Survey and Construction of Steel Ships are to be complied with. In addition, ventilating fans, except for inert gas blowers, are to be installed within hazardous area.</li> </ul> </li> </ol>	<ul> <li>cargo oil pipes are to be dealt with in the same manner as those in cargo oil piping systems. However, for those piping systems specified in 15.6.3-4, 15.6.10-6, and 15.6.14-2, Part 7 of the Rules and item (2) below, this requirement may be dispensed with. Piping systems connected to cargo oil piping means those connected to cargo oil pipes, and those piping systems having openings thereto. Accordingly, hydraulic oil pipes for controlling cargo oil piping systems, for example, are not regarded as a piping system connected to the cargo oil piping.</li> <li>(2) In cases where cargo oil piping systems are connected to the following piping systems:</li> <li>(a) Tank vent pipes The requirements in 35.2.7-7 and -8, Part R of the Rules for the Survey and Construction of Steel Ships are to be complied with. In addition, ventilating fans, except for inert gas blowers, are</li> </ul>	
<ul> <li>(b) Pressure gauge pipes for cargo oil piping systems (including pumps)</li> <li>Pressure gauges to which cargo oil is directly led are to be installed in pump rooms or on weather decks. However, in cases where stop valves are provided at joints between pressure gauge piping systems and cargo oil piping systems, and in cases where bulkhead valves are provided at locations where such pipes penetrate bulkhead</li> </ul>	(including pumps) Pressure gauges to which cargo oil is directly led are to be installed in pump rooms or on weather decks. However, in cases where stop valves are provided at joints between pressure gauge piping systems and cargo oil piping systems, and in cases where bulkhead valves are provided at	

between engine rooms and pump rooms, pressure gauges may be installed in engine	between engine rooms and pump rooms, pressure gauges may be installed in engine	
rooms.	rooms.	
(c) Pipes for measuring oil content	(c) Pipes for measuring oil content	
Sampling pipes for measuring oil content may be	Sampling pipes for measuring oil content may be	
led to spaces other than hazardous area, in cases	led to spaces other than hazardous area, in cases	
where such pipes have nominal diameters of $25A$	where such pipes have nominal diameters of $25A$	
or less and in cases where two or more stop	or less and in cases where two or more stop	
valves are provided between cargo oil piping and	valves are provided between cargo oil piping and	
the penetration of the casing of non-hazardous	the penetration of the casing of non-hazardous	
area.	area.	

#### Guidance for the Survey and Construction of Inland Waterway Ships Part 7 Chapter 2 2.8.4-2

Correction	Present	Note
2 The procedure for omitting the temperature rise tests,	2 The procedure for omitting the temperature rise tests,	Wording correction
etc. specified in 2.8.4, Part 8 of the Rules is the same as that	etc. specified in 2.8.4, Part 8 of the Rules is the same as that	
specified for rotating machines in 8.2.4.15-2(1) to $(7)$ ; ), Part	specified for rotating machines in 8.2.4.15-2(1) to (7);	
<b><u>8 of the Guidance</u></b> ; however, the term "rotating machines" is	however, the term "rotating machines" is to be read as	
to be read as "controlgears for motors". In addition, the	"controlgears for motors". In addition, the checklist given in	
checklist given in 8.2.4.15-2(7)), Part 8 of the Guidance is to	8.2.4.15-2(7) is to be checklist (CL-ST-IL) prepared by the	
be checklist (CL-ST-IL) prepared by the manufacturer.	manufacturer.	

# Guidance for the Survey and Construction of Inland Waterway Ships Part 7 Chapter 2 2.8.4-3

Correction	Present	Note
3 High voltage tests are to be in accordance with	3 High voltage tests are to be in accordance with	Wording correction
8.2.5.10-3 to5, Part 8 of Guidance as far as practicable.	<b>8.2.5.10-3</b> to <b>-5</b> as far as practicable.	

## Guidance for the Survey and Construction of Inland Waterway Ships Part 8 Chapter 2 2.10.4

Correction	Present	Note
The wording "in those cases where deemed appropriate by the Society" in 2.10.4-2, Part 8 of the Rules	The wording "in those cases where deemed appropriate by the Society" in 2.10.4-2, Part 8 of the Rules	Reference correction
means that limits of temperature rise may be modified as	means that limits of temperature rise may be modified as	
follows:	follows:	
(1) In cases where forced cooling is provided and the	(1) In cases where forced cooling is provided and the	
temperatures of cooling water at the inlets of air	temperatures of cooling water at the inlets of air	
coolers are not higher than 32 °C, limits of	coolers are not higher than 32 °C, limits of	
temperature rise may be set $13K$ higher than those	temperature rise may be set 13K higher than those	
limits specified in Table 8.2.162, Part 8 of the	limits specified in Table 8.2.16, Part 8 of the Rules.	
Rules.		
(2) In cases where forced cooling is provided and the	(2) In cases where forced cooling is provided and the	
temperatures of cooling water at the inlets of coolers	temperatures of cooling water at the inlets of coolers	
are higher than 32°C, limits of temperature rise may	are higher than 32°C, limits of temperature rise may	
be determined by the Society on a case by case basis.	be determined by the Society on a case by case basis.	

### Guidance for the Survey and Construction of Inland Waterway Ships Part 9 Chapter 3 3.5.5-1

Correction	Present	Note
1 With respect to the requirements of 3.5.5-1(1), Part 9	1 With respect to the requirements of 3.5.5-1(1), Part 9	Reference correction
of the Rules:	of the Rules:	
(1) For minimizing possible accumulation of the	(1) For minimizing possible accumulation of the	
flammable vapours, the ducts are to be arranged, to	flammable vapours, the ducts are to be arranged, to	
permit ventilation in the vicinity of the cargo pump-	permit ventilation in the vicinity of the cargo pump-	
room bilge, above the floor plate or bottom	room bilge, above the floor plate or bottom	
longitudinals. An emergency intake located nearly 2	longitudinals. An emergency intake located nearly 2	
<i>m</i> above the cargo pump-room lower grating is to be	<i>m</i> above the cargo pump-room lower grating is to be	
arranged for the ducts, and this emergency intake is	arranged for the ducts, and this emergency intake is	
to have a damper which is capable of being opened or	to have a damper which is capable of being opened or	
closed from the weather deck and lower grating level.	closed from the weather deck and lower grating level.	
When the lower inlets are closed, at least 15 air	When the lower inlets are closed, at least 15 air	
changes per hour are to be obtained through the upper	changes per hour are to be obtained through the upper	
inlets.	inlets.	
(2) The ventilation fan of non-sparking construction is to	(2) The ventilation fan of non-sparking construction is to	

be as follows:

- (a) The ventilation fan of non-sparking construction means fans of which materials used for impellers and/or housings are regarded as having a non-sparking property in accordance with Table 9.3.5.5-1 and of which blade tip clearance is at least 10% of the shaft diameter but need not be more than 13 mm (minimum 2 mm) except if such materials are ferrous meterials (including austenitic stainless steel). Those specified in this (a) also apply to the portable blower fans used outside the cargo pump-room.
- (b) Notwithstanding the requirements specified in (a) above, fans for which non-sparking property test is carried out in accordance with the procedures approved by the Society in the presence of the Surveyor with satisfactory results may be considered as a non-sparking type. This test may be omitted for fans having test results considered as appropriate by the Society.
- (c) Where non-metal materials are used, the antielectrostatic property is to be verified by a method considered as appropriate by the Society. Fans of which electrical leakage resistance (insulation resistance to earth) is less than  $1 \times 10^6 \Omega$  or electrical conductivity is not less than  $1 \times 10^8 S/m$  may be regarded as having an antielectrostatic property.
- (d) Ventilation fans are to be earthed effectively with the hull.
- (3) The wording "mesh of suitable size" for wire mesh screens means a mesh not exceeding  $13 \text{ } mm \times 13 \text{ } mm$ .

be as follows:

- (a) The ventilation fan of non-sparking construction means fans of which materials used for impellers and/or housings are regarded as having a non-sparking property in accordance with Table 9.3.5.5-1 and of which blade tip clearance is at least 10% of the shaft diameter but need not be more than 13 mm (minimum 2 mm) except if such materials are ferrous meterials (including austenitic stainless steel). Those specified in this (a) also apply to the portable blower fans used outside the cargo pump-room.
- (b) Notwithstanding the requirements specified in (a) above, fans for which non-sparking property test is carried out in accordance with the procedures approved by the Society in the presence of the Surveyor with satisfactory results may be considered as a non-sparking type. This test may be omitted for fans having test results considered as appropriate by the Society.
- (c) Where non-metal materials are used, the antielectrostatic property is to be verified by a method considered as appropriate by the Society. Fans of which electrical leakage resistance (insulation resistance to earth) is less than  $1 \times 10^{6} \Omega$  or electrical conductivity is not less than  $1 \times 10^{8} S/m$  may be regarded as having an antielectrostatic property.
- (d) Ventilation fans are to be earthed effectively with the hull.
- (3) The wording "mesh of suitable size" for wire mesh screens means a mesh not exceeding  $13 \text{ } mm \times 13 \text{ } mm$ .

## Guidance for the Survey and Construction of Inland Waterway Ships Part 9 Chapter 3 3.5.5-2

Correction	Present	Note
2 The wording "the wire gauze to prevent the passage of flame" specified in 3.5.5-1(2), Part 9 of the Rules means the one specified in 15.6.14-3(1), Part 7.		Reference correction

#### Guidance for the Survey and Construction of Inland Waterway Ships Part 9 Chapter 3 3.5.6-1

Correction	Note	
1 The wording "means to prevent hydrocarbon gases	1 The wording "means to prevent hydrocarbon gases	Reference correction
from the cargo tanks entering the double hull spaces through	from the cargo tanks entering the double hull spaces through	
the system" specified in 3.5.6-3(2), Part 9 of the Rules	the system" specified in 3.5.6-3(2), Part 9 of the Rules	
means that the branch lines for the supply of inert gas into	means that the branch lines for the supply of inert gas into	
the double hull spaces are connected to the position between	the double hull spaces are connected to the position between	
the inert gas regulating valves specified in 35.2.6-3(1)(b),	the inert gas regulating valves specified in 35.2.6-3(1), Part	
Part R of the Rules for the Survey and Construction of	R of the Rules for the Survey and Construction of Steel	
Steel Ships and the water seal specified in $35.2.6-42-3(1)$ ,	Ships and the water seal specified in 35.2.6-4(1), Part R of	
Part R of the Rules for the Survey and Construction of	the Rules for the Survey and Construction of Steel Ships	
Steel Ships or equivalent measures, and are fitted with the	or equivalent measures, and are fitted with the water seal in	
water seal in addition to the water seal required in 35.2.6-42-	addition to the water seal required in 35.2.6-4(1), Part R of	
<u>3(1)</u> , Part R of the Rules for the Survey and Construction	the Rules for the Survey and Construction of Steel Ships	
of Steel Ships to prevent hydrocarbon gases from the	to prevent hydrocarbon gases from the polluted double hull	
polluted double hull spaces entering machinery spaces or	spaces entering machinery spaces or other safety spaces.	
other safety spaces.		

## Guidance for the Survey and Construction of Inland Waterway Ships Part 9 Chapter 3 3.5.6-3

Correction	Present	Note
3 The wording "the requirements deemed appropriate by	3 The wording "the requirements deemed appropriate by	Reference correction
the Society" specified in 3.5.6-4(1), Part 9 of the Rules	the Society" specified in 3.5.6-4(1), Part 9 of the Rules	
means the requirements of the Annex S11.1.1-	means the requirements of the Annex S11.1.1-2(1)(a), Part S	
<del>2(1)(a),<u>Chapter 35</u>, Part <u>SR</u> of the <u>GuidanceRules</u> for the</del>	of the Guidance for the Survey and Construction of Steel	
Survey and Construction of Steel Ships "Inert Gas	Ships "Inert Gas Systems using Oil Fired Inert Gas	
Systems using Oil Fired Inert Gas Generators on Ships	Generators on Ships Carrying Dangerous Chemicals in	
Carrying Dangerous Chemicals in Bulk".	Bulk".	

### Guidance for the Survey and Construction of Inland Waterway Ships Part 9 Chapter 8 8.5.2-1

Correction	Present	Note
1 With respect to the requirements of 8.5.2, Part 9 of	1 With respect to the requirements of 8.5.2, Part 9 of	Wording correction
the Rules, the provisions of <u>8.5.1</u> -1 to <u>8.5.1</u> -3, <u>Part 9</u> of	the Rules, the provisions of -1 to -3 of 8.5.1 of this	Wording correction
8.5.1 of this the Guidance are to be applied.	Guidance are to be applied.	

### Guidance for the Survey and Construction of Inland Waterway Ships Part 9 Chapter 9 9.3.3-2

Correction	Present	Note
2 With respect to the requirements specified in 9.3.3,	1 1 1	Wording correction
Part 9 of the Rules, doors on escape routes provided in	Part 9 of the Rules, doors on escape routes provided in	
machinery spaces' boundaries facing control stations,	machinery spaces' boundaries facing control stations,	
accommodation or service spaces are, in general, to comply	accommodation or service spaces are, in general, to comply	
with the requirements of 9.2.1-5, Part 9 of the Rules. Details	with the requirements of 9.2.1.5, Part 9 of the Rules. Details	
of means of escape except ladders in fire shelter are to be in	of means of escape except ladders in fire shelter are to be in	
accordance with 9.2.2-5, Part 9 of the Rules.	accordance with 9.2.2-5, Part 9 of the Rules.	

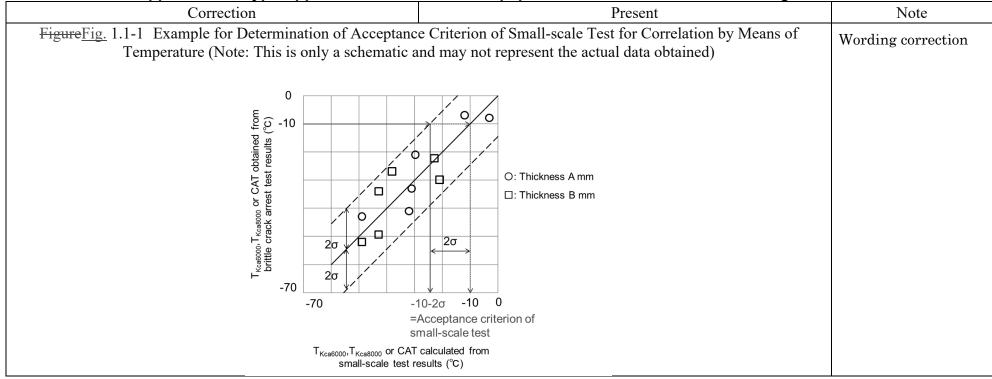
## Guidance for the Survey and Construction of Inland Waterway Ships Part 9 Chapter 9 9.3.3-3

Correction	Present	Note
<b>3</b> The wording "emergency steering position" specified	3 The wording "emergency steering position" specified	Reference correction
in 9.3.23-2, Part 9 of the Rules means all steering positions	in 9.3.2-2, Part 9 of the Rules means all steering positions	
other than that in the navigation bridge.	other than that in the navigation bridge.	

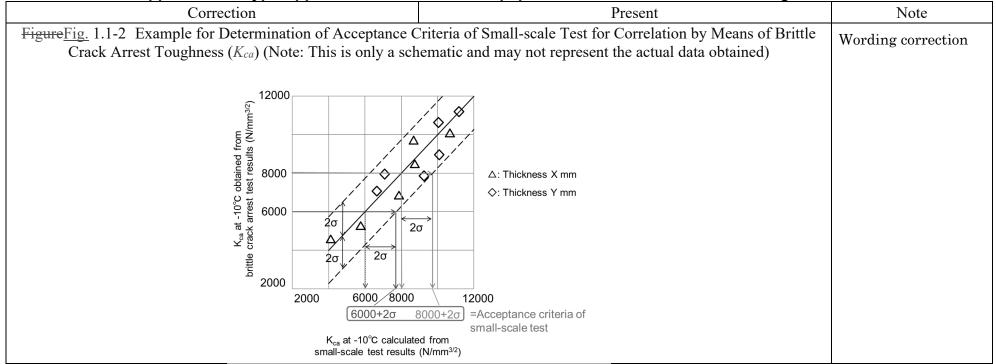
Correction	Present	Note
2 Unless otherwise specified in this annex, Chapter 1,	2 Unless otherwise specified in this annex, Chapter 1,	Reference correction
Part <u>4I</u> is to be followed.	Part 1 is to be followed.	

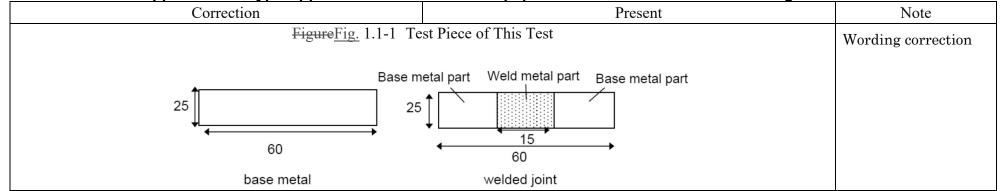
	Correction	Present			Note
2 criteria	Unless otherwise agreed to by the Society, acceptance a for small-scale tests are to be determined by following	<b>2</b> criteria		ess otherwise agreed to by the Society, acceptance mall-scale tests are to be determined by following	Wording correction
proced	lures:	procedures:			
(1)	Correlation by temperature	(1) Correlation by temperature			
	(a) The required temperature (see Figure Fig. 1.1-1) is obtained by subtracting $2\sigma$ (°C) from the brittle crack arrest steel specification in Table K3.41, Part K of the Rules for the Survey and Construction of Steel Ships (i.e. $-10 - 2\sigma$ (°C)), where $2\sigma$ is given in 1.3.4-2. $T_{Kca6000}$ and $T_{Kca8000}$ in Figure Fig. 1.1-1 are the temperatures at which $K_{ca}$ equals 6,000 N/mm <sup>3/2</sup>			The required temperature (see Figure 1.1-1) is obtained by subtracting $2\sigma$ (°C) from the brittle crack arrest steel specification in Table K3.41, Part K of the Rules for the Survey and Construction of Steel Ships (i.e. $-10 - 2\sigma$ (°C)), where $2\sigma$ is given in 1.3.4-2. $T_{Kca6000}$ and $T_{Kca8000}$ in Figure 1.1-1 are the temperatures at which $K_{ca}$ equals 6,000 $N/mm^{3/2}$ and 8,000	
	<ul> <li>and 8,000 N/mm<sup>3/2</sup>, respectively.</li> <li>(b) Temperature predicted from small-scale test results using the regression equation are to be no</li> </ul>		(b)	$N/mm^{3/2}$ , respectively. Temperature predicted from small-scale test results using the regression equation are to be no	
(2)	higher than the value of $-10 - 2\sigma$ (°C). Correlation by brittle crack arrest toughness ( $K_{ca}$ ) (a) The required $K_{ca}$ (see FigureFig. 1.1-2) is obtained by adding $2\sigma$ ( $N/mm^{3/2}$ ) to the brittle crack arrest steel specification in Table K3.40, Part K of the Rules for the Survey and Construction of Steel Ships that is either 6,000 + $2\sigma$ ( $N/mm^{3/2}$ ) for <i>BCA</i> 6000 or 8,000 + $2\sigma$ ( $N/mm^{3/2}$ ) for <i>BCA</i> 8000, where $2\sigma$ is given in 1.3.4-2.	(2)	Corr (a)	higher than the value of $-10 - 2\sigma$ (°C). relation by brittle crack arrest toughness ( $K_{ca}$ ) The required $K_{ca}$ (see <b>Figure 1.1-2</b> ) is obtained by adding $2\sigma$ ( $N/mm^{3/2}$ ) to the brittle crack arrest steel specification in <b>Table K3.40</b> , <b>Part K of the</b> <b>Rules for the Survey and Construction of Steel</b> <b>Ships</b> that is either 6,000 + $2\sigma$ ( $N/mm^{3/2}$ ) for <i>BCA</i> 6000 or 8,000 + $2\sigma$ ( $N/mm^{3/2}$ ) for <i>BCA</i> 8000, where $2\sigma$ is given in <b>1.3.4-2</b> .	
	(b) $K_{ca}$ values predicted from small-scale test results using the regression equation are to be no smaller than the values of $6000 + 2\sigma (N/mm^{3/2})$ for $BCA6000$ or $8000 + 2\sigma (N/mm^{3/2})$ for $BCA8000$ .			$K_{ca}$ values predicted from small-scale test results using the regression equation are to be no smaller than the values of $6000 + 2\sigma (N/mm^{3/2})$ for $BCA6000$ or $8000 + 2\sigma (N/mm^{3/2})$ for $BCA8000$ .	

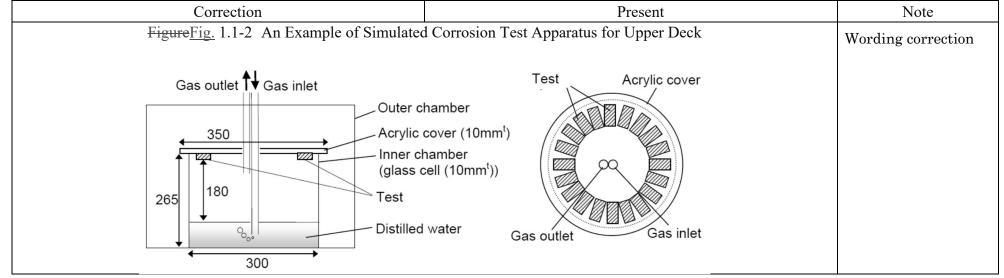




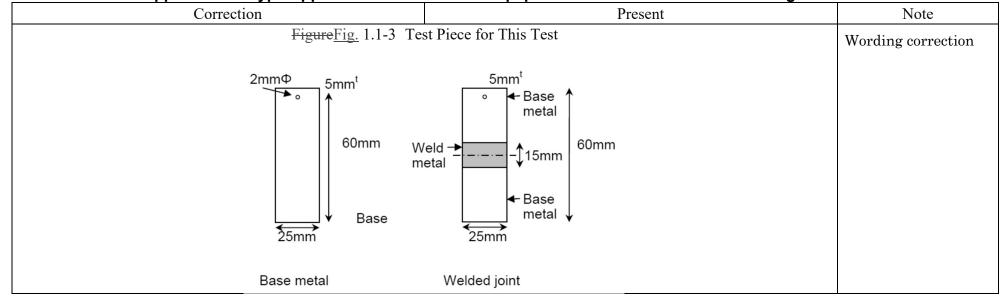


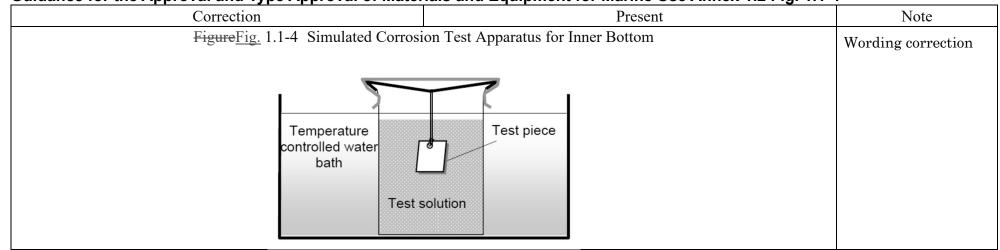






Correction			Present	Note
	Tests on simulated inner bottom conditions in cargo	Tests on simulated inner bottom conditions in cargo		Wording correction
oil tanks (COT) are to satisfy each of the following		oil tanks (COT) are to satisfy each of the following		8
conditi		conditi		
(1)	The test is to be carried out for 72 h for base metal,	(1)	The test is to be carried out for 72 h for base metal,	
	and 168 h for welded joint.		and 168 h for welded joint.	
(2)	There are to be at least five test pieces of corrosion	(2)	There are to be at least five test pieces of corrosion	
	resistant steel for base metal and welded joint,		resistant steel for base metal and welded joint,	
	respectively. For comparison, at least five test pieces		respectively. For comparison, at least five test pieces	
	of base metal of conventional steel should be tested		of base metal of conventional steel should be tested	
$\langle 0 \rangle$	in the same condition.		in the same condition.	
(3)	The size of each test piece is $25 \pm 1 \text{ mm} \ge 60 \pm 1 \text{ mm}$	(3)	The size of each test piece is $25 \pm 1 \text{ mm} \ge 60 \pm 1 \text{ mm}$	
	x $5 \pm 0.5$ mm for a specimen with base metal only,		x 5 $\pm$ 0.5 mm for a specimen with base metal only,	
	and is $25 \pm 1 \ mm \ x \ 60 \pm 1 \ mm \ x \ 5 \pm 0.5 \ mm \ for a$		and is $25 \pm 1 \ mm \ x \ 60 \pm 1 \ mm \ x \ 5 \pm 0.5 \ mm \ for a$	
	specimen with welded joint including $15 \pm 5 mm$		specimen with welded joint including $15 \pm 5 mm$	
	width of weld metal part as shown in <b>Figure Fig.</b> 1.1-		width of weld metal part as shown in <b>Figure 1.1-3</b> .	
	3. The surface of the test pieces is to be polished with		The surface of the test pieces is to be polished with	
(4)	an emery paper #600, except a hole for hanging.	(4)	an emery paper #600, except a hole for hanging.	
(4)	The samples are hung in a solution from a fishing line $(0.3 mm \text{ to } 0.4 mm \text{ in diameter, made of nylon})$ to	(4)	The samples are hung in a solution from a fishing line $(0.3 mm \text{ to } 0.4 mm \text{ in diameter, made of nylon})$ to	
	avoid crevice-like and/or localized corrosion. An		avoid crevice-like and/or localized corrosion. An	
	example of a corrosion test configuration is shown in		example of a corrosion test configuration is shown in	
	FigureFig. 1.1-4.		Figure 1.1-4.	
(5)	The test solution contains 10 mass% <i>NaCl</i> and its pH	(5)	The test solution contains 10 mass% <i>NaCl</i> and its pH	
	is 0.85 adjusted by $HCl$ solution. The test solution	$(\mathbf{J})$	is 0.85 adjusted by $HCl$ solution. The test solution	
	should be changed to a new one every 24 h to		should be changed to a new one every 24 h to	
	minimize pH change of the test solution. The volume		minimize pH change of the test solution. The volume	
	of the solution is more than $20  cc/cm^2$ (surface area of		of the solution is more than $20  cc/cm^2$ (surface area of	
	test piece). The temperature of the test solution is to		test piece). The temperature of the test solution is to	
	be kept at $30 \pm 2^{\circ}$ C.		be kept at $30 \pm 2^{\circ}$ C.	





Correction	Present	Note
2 After the testing, the following measured data are to be reported:	2 After the testing, the following measured data are to be reported:	Wording correction
(1) weight loss (difference between initial weight and weight after testing)	(1) weight loss (difference between initial weight and weight after testing)	
(2) corrosion rate ( <i>C.R.</i> ) calculated by the following formula:	(2) corrosion rate ( <i>C.R.</i> ) calculated by the following formula:	
$C.R.(mm/year) = \frac{365(days) \times 24(hours) \times W \times 10}{S \times 72(hours) \times D}$	$C.R.(mm/year) = \frac{365(days) \times 24(hours) \times W \times 10}{S \times 72(hours) \times D}$	
<ul> <li>W: weight loss (g)</li> <li>S: surface area (cm<sup>2</sup>)</li> <li>D: density (g/cm<sup>3</sup>)</li> <li>(3) To identify specimen which hold crevice and/or localized corrosion, the C.R. is to be plotted on a normal distribution statistic chart. C.R. data which deviate from the normal statistical distribution are to be eliminated from the test results. An example is shown in FigureFig. 1.1-5 for reference.</li> </ul>	<ul> <li>W: weight loss (g)</li> <li>S: surface area (cm<sup>2</sup>)</li> <li>D: density (g/cm<sup>3</sup>)</li> <li>(3) To identify specimen which hold crevice and/or localized corrosion, the C.R. is to be plotted on a normal distribution statistic chart. C.R. data which deviate from the normal statistical distribution are to be eliminated from the test results. An example is shown in Figure 1.1-5 for reference.</li> </ul>	
(4) calculation of average of $C.R.$ 's data ( $C.R.ave$ )	(4) calculation of average of $C.R.$ 's data ( $C.R.ave$ )	

Correction			Present	Note
Figure <u>Fig.</u> 1.1-5 And (In this case C.	Example of Plot c $R$ . data $\bullet$ should t 80% 70% 60%	of <i>C.R.</i> s on a Normal Distr o be abandoned and elimit	ibution Chart	Wording correction
Cumulative pr	50% 40% 30% 20% 10% 0%	C.R.		

Correction	Present	Note
<b>6</b> Freeboard and Stability Tests [7.1.1]	<b>6</b> Freeboard and Stability Tests [7.1.1]	Wording correction
Freeboard and stability tests are to be carried out in	Freeboard and stability tests are to be carried out in	
accordance with 1.2.2-7(1)(b)) "Loading Test (Freeboard	accordance with 1.2.2-7(1)(b) "Loading Test (Freeboard	
Measurement)" of Annex 2.2 "Procedures for Prototype Tests	Measurement)" as well as 1.2.7 "Lifeboat Freeboard and	
for Type Approval and Production Tests for Rescue Boats" as	Stability Tests" of Annex 2.1 "Procedures for Prototype Tests	
well as 1.2.7 "Lifeboat Freeboard and Stability Tests" of	for Type Approval and Production Tests of Lifeboats".	
Annex 2.1 "Procedures for Prototype Tests for Type Approval		
and Production Tests of Lifeboats".		

Correction	Present	Note
17 Mooring out Test [7.2.15]	17 Mooring out Test [7.2.15]	Reference correction
Mooring out test is to be carried out in accordance with	Mooring out test is to be carried out in accordance with	
1.2.5 "Mooring out tests" of Annex 2.3 "Procedures for	1.2.5 "Mooring out tests" of Annex 3 "Procedures for	
Prototype Tests for Type Approval and Production Tests of	Prototype Tests for Type Approval and Production Tests of	
Inflatable Liferafts"	Inflatable Liferafts"	

### Guidance for the Approval and Type Approval of Materials and Equipment for Marine Use Annex 2.2 Chapter 1 1.2.4-6

Correction	Present	Note	
6 Freeboard and Stability Tests	6 Freeboard and Stability Tests	Wording correction	
Freeboard and stability tests are to be carried out in	Freeboard and stability tests are to be carried out in	working correction	
accordance with 1.2.2-7(1)(b)) "Loading Test (Freeboard	accordance with 1.2.2-7(1)(b) "Loading Test (Freeboard		
Measurement)" of Annex 2.2 "Procedures for Prototype Tests	Measurement)" as well as 1.2.7 "Lifeboat Freeboard and		
for Type Approval and Production Tests for Rescue Boats" as	Stability Tests" of Annex 2.1 "Procedures for Prototype Tests		
well as 1.2.7 "Lifeboat Freeboard and Stability Tests" of	for Type Approval and Production Tests of Lifeboats".		
Annex 2.1 "Procedures for Prototype Tests for Type Approval			
and Production Tests of Lifeboats".			

Correction	Present	Note
17 Mooring out Test	17 Mooring out Test	Reference correction
A mooring out test is to be carried out in accordance with	A mooring out test is to be carried out in accordance with	
1.2.5 "Mooring out test" of Annex 2.3 "Procedures for	1.2.5 "Mooring out test" of Annex 3 "Procedures for	
Prototype Tests for Type Approval and Production Tests of	Prototype Tests for Type Approval and Production Tests of	
Inflatable Liferafts", except if the boats has its waterline below	Inflatable Liferafts", except if the boats has its waterline below	
the lower side of the inflated tube.	the lower side of the inflated tube.	

	Correction		Present	Note
	The test report is to include the following information:		The test report is to include the following information:	Reference correction
(1)	Name of the manufacturer;	(1)	Name of the manufacturer;	
(2)	Date of tests;	(2)	Date of tests;	
(3)	Product name/identification of both paint and primer	(3)	Product name/identification of both paint and primer	
	(if <del>Part 4, 4.1.1-2(2), <u>Part 4</u>, including kind of shop primer);</del>		(if Part 4, 4.1.1-2(2), including kind of shop primer);	
(4)	Batch number;	(4)	Batch number;	
(5)	Data of surface preparation on steel panels, including	(5)	Data of surface preparation on steel panels, including	
	the following:		the following:	
	(a) Surface treatment;		(a) Surface treatment;	
	(b) Water soluble salts limit;		(b) Water soluble salts limit;	
	(c) Dust; and		(c) Dust; and	
	(d) Abrasive inclusions;		(d) Abrasive inclusions;	
(6)	Application data of coating system, including the	(6)	Application data of coating system, including the	
	following:		following:	
	(a) Shop primed;		(a) Shop primed;	
	(b) Number of coats;		(b) Number of coats;	
	(c) Recoat interval <sup>*</sup> ;		(c) Recoat interval <sup>*</sup> ;	
	(d) Dry film thickness ( <i>DFT</i> ) prior to testing <sup>*</sup> ;		(d) Dry film thickness ( <i>DFT</i> ) prior to testing <sup>*</sup> ;	
	(e) Thinner <sup>*</sup> ;		(e) Thinner <sup>*</sup> ;	
	(f) Humidity <sup>*</sup> ;		(f) Humidity <sup>*</sup> ;	
	(g) Air temperature <sup>*</sup> ; and		(g) Air temperature <sup>*</sup> ; and	
	(h) Steel temperature;		(h) Steel temperature;	
	(Remark)		(Remark)	
	* Both of actual specimen data and manufacturer's		* Both of actual specimen data and manufacturer's	
( <b>7</b> )	requirement/recommendation.	( <b>7</b> )	requirement/recommendation.	
(7)	Test results according to 1.2; and	(7)	Test results according to 1.2; and	
(8)	Judgment according to 1.3.	(8)	Judgment according to 1.3.	

	Correction		Present	Note
	The test report is to include the following information:		The test report is to include the following information:	Reference correction
(1)	Name of the manufacturer;	(1)	Name of the manufacturer;	
(2)	Date of tests;	(2)	Date of tests;	
(3)	Product name/identification of both paint and primer	(3)	Product name/identification of both paint and primer	
	(if Part4, 4.1.1-2(2), Part 4, including kind of shop		(if Part4, 4.1.1-2(2), including kind of shop primer);	
	primer);			
(4)	Batch number;	(4)	Batch number;	
(5)	Data of surface preparation on steel panels, including	(5)	Data of surface preparation on steel panels, including	
	the following:		the following:	
	(a) Surface treatment;		(a) Surface treatment;	
	(b) Water soluble salts limit;		(b) Water soluble salts limit;	
	(c) Dust; and		(c) Dust; and	
	(d) Abrasive inclusions;		(d) Abrasive inclusions;	
(6)	Application data of coating system, including the	(6)	Application data of coating system, including the	
	following:		following:	
	(a) Shop primed;		(a) Shop primed;	
	(b) Number of coats;		(b) Number of coats;	
	(c) Recoat interval <sup>*</sup> ;		(c) Recoat interval <sup>*</sup> ;	
	(d) Dry film thickness ( <i>DFT</i> ) prior to testing <sup>*</sup> ;		(d) Dry film thickness ( <i>DFT</i> ) prior to testing <sup>*</sup> ;	
	(e) Thinner <sup>*</sup> ;		(e) Thinner <sup>*</sup> ;	
	(f) Humidity <sup>*</sup> ;		(f) Humidity <sup>*</sup> ;	
	(g) Air temperature <sup>*</sup> ; and		(g) Air temperature <sup>*</sup> ; and	
	(h) Steel temperature;		(h) Steel temperature;	
	(Remark)		(Remark)	
	* Both of actual specimen data and manufacturer's		* Both of actual specimen data and manufacturer's	
( <b>7</b> )	requirement/recommendation.	( <b>7</b> )	requirement/recommendation.	
(7)	Test results according to 1.2; and	(7)	Test results according to 1.2; and	
(8)	Judgment according to 1.3.	(8)	Judgment according to 1.3.	

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