Corrigenda for 2024 Classification Technical Rules

* Please note that this corrigenda is for the printed version of the 2024 Classification Technical Rules, and the PDF files posted on the website have been corrected.

PART 1

Present	Amendments	Reason
⟨Guidance Part 1⟩ **Annex 1-12 Hull Survey for Classification Survey during Construction** **Table 1 Hull Surveyable Items Activities Table** **< Supplement of Table 1 >** – Prior to commencement of survey for any newbuilding project, the Society is to discuss with the shipbuilder at a kick off meeting the items listed in **Table 1**. The purpose of the meeting is to review and agree how the list of specific activities shown in **Table 1** is to be addressed. The meeting is to take into account the shipbuilder's construction facilities and ship type including the list of proposed subcontractors. <omitted> – In the event of series ship production*, the requirement for a kick off meeting may be waived for the second and subsequent ships provided that no changes to the specific activities agreed in the kick off meeting for the first ship are introduced. If any changes are introduced, these are to be agreed in a new dedicated meeting and documented in a record of such meeting. * Series Ship: See **Pt 1, Ch 1,** 309. of the Rules.	⟨Guidance Part 1⟩ **Annex 1-12 Hull Survey for Classification Survey during Construction** **Table 1 Hull Surveyable Items Activities Table** **< Supplement of Table 1 >** – Prior to commencement of survey for any newbuilding project, the Society is to discuss with the shipbuilder at a kick off meeting the items listed in **Table 1**. The purpose of the meeting is to review and agree how the list of specific activities shown in **Table 1** is to be addressed. The meeting is to take into account the shipbuilder's construction facilities and ship type including the list of proposed subcontractors. <same as the current Guidance> – In the event of series ship production*, the requirement for a kick off meeting may be waived for the second and subsequent ships provided that no changes to the specific activities agreed in the kick off meeting for the first ship are introduced. If any changes are introduced, these are to be agreed in a new dedicated meeting and documented in a record of such meeting. * Series Ship: See **Pt 1, Ch 1,** 101. 5. ~~309.~~ of the Rules.	-At the request of the Survey Team's letter(SUR3000-582-2024) on April 24 2024.

Present	Amendment	Note
〈Rules〉 Pt 1	〈Rules〉 Pt 1	
CHAPTER 3 HULL SURVEYS OF SHIPS ~	**CHAPTER 3 HULL SURVEYS OF SHIPS ~**	
Section 2 Bulk Carries	**Section 2 Bulk Carries**	
202. Annual Survey	**202. Annual Survey**	
3. Examination of weather decks, hatch covers and coamings	**3. Examination of weather decks, hatch covers and coamings**	
(4) Where the cargo hatch securing system does not function properly, repairs are to be carried out under the supervision of the Society. Where hatch covers or coamings undergo substantial repairs, the strength of securing devices should be upgraded to comply with Rules **Pt 7, Ch 3, Sec 9, 905.** "Securing arrangements". *(2019)*	(4) Where the cargo hatch securing system does not function properly, repairs are to be carried out under the supervision of the Society. Where hatch covers or coamings undergo substantial repairs, the strength of securing devices should be upgraded to comply with Rules Pt 4, Ch 2, Sec 5. *(2019)*	
Section 6 Double Skin Bulk Carriers	**Section 6 Double Skin Bulk Carriers**	
602. Annual Survey	**602. Annual Survey**	
3. Examination of weather deck, hatch covers and coamings	**3. Examination of weather deck, hatch covers and coamings**	
(4) Where the cargo hatch securing system does not function properly, repairs are to be carried out under the supervision of the Society. Where hatch covers or coamings undergo substantial repairs, the strength of securing devices should be upgraded to comply with Rules **Pt 7, Ch 3, Sec 9, 905.** "Securing arrangements". *(2019)*	(4) Where the cargo hatch securing system does not function properly, repairs are to be carried out under the supervision of the Society. Where hatch covers or coamings undergo substantial repairs, the strength of securing devices should be upgraded to comply with Rules Pt 4, Ch 2, Sec 5.. *(2019)*	

Present	Amendment	Note
〈Guidance〉 Pt 1 **Annex 1-5 Thickness Measurement Method for Hull Structural Members** **2. Wear Limit** (3) Wear limit of hold hatch cover of bulk carriers which are contracted for construction after 1st July 1998 and before 1st January 2004 and designed by the Rules **Pt 7, Ch 3, Sec 9** is to be determined in accordance with the following requirements. (4) Wear limit of hold hatch cover and hatch coatings of all bulk carriers, ore carriers and combination carriers which are contracted for construction on or after 1st January 2004 and designed by the Rules **Pt 7, Ch 3, Sec 9** is to be determined in accordance with the following requirements.	〈Guidance〉 Pt 1 **Annex 1-5 Thickness Measurement Method for Hull Structural Members** **2. Wear Limit** (3) Wear limit of hold hatch cover of bulk carriers which are contracted for construction after 1st July 1998 and before 1st January 2004 and designed by the Rules Pt 4, Ch 2 is to be determined in accordance with the following requirements. (4) Wear limit of hold hatch cover and hatch coatings of all bulk carriers, ore carriers and combination carriers which are contracted for construction on or after 1st January 2004 and designed by the Rules Pt 4, Ch 2 is to be determined in accordance with the following requirements.	

Present	Amendments	Reason
〈GUIDANCE PART 1〉 **CHAPTER 2 PERIODICAL AND OTHER SURVEYS** **Section 1 General** **112. Thickness measurements Acceptance Criteria *(2019)*** The acceptance criteria for thickness measurements are according to **Annex 1-5, Table 1** and/or specific IACS URs depending on ship's age and structural elements concerned, e.g. UR S21A(UR S21A applies for ships contracted for construction on or after 1 July 2012, Rev.1 of UR S21A applies for ships contracted for construction on or after 1 July 2016.) for all cargo hatch covers and coamings on exposed decks **Section 6 Docking Survey** **604. In-water Survey** **3.** Where an In-water Survey in lieu of the intermediate docking between Special Surveys is desired, the survey procedures are as follows: (8) For a ship with IWS of additional special feature notation, the following requirements are to be complied with, in addition to the requirements specified in preceding (1) to (7). *(2023)* (a) The plans and documents specified in (1) and (b) to (d) below are to be submitted to the Society for approval, and are to be kept on board.	**〈GUIDANCE PART 1〉** **CHAPTER 2 PERIODICAL AND OTHER SURVEYS** **Section 1 General** **112. Thickness measurements Acceptance Criteria *(2024)*** The acceptance criteria for thickness measurements are according to **Annex 1-5, Table 1** and/or specific IACS URs depending on ship's age and structural elements concerned, e.g. UR S21(UR S21 Rev.6 applies for ships contracted for construction on or after 1 July 2024) or UR S21A(UR S21A applies for ships contracted for construction on or after 1 July 2012, Rev.1 of UR S21A applies for ships contracted for construction on or after 1 July 2016. UR S21A was withdrawn from 1 July 2024 and replaced by UR S21 Rev.6) for all cargo hatch covers and coamings on exposed decks **Section 6 Docking Survey** **604. In-water Survey** **3.** Where an In-water Survey in lieu of the intermediate docking between Special Surveys is desired, the survey procedures are as follows: (8) For a ship with IWS of additional special feature notation, the following requirements are to be complied with, in addition to the requirements specified in preceding (1) to (7). *(2023)* (a) The plans and documents specified in (1) and (b) to (c) ~~(d)~~ below are to be submitted to the Society for approval, and are to be kept on board.	- Reflection to IACS UR Z7 (Rev.29 Corr. 1 May 2024) & UR Z7.1 (Rev.15 Corr. 1 May 2024) - Typo : 화물선팀에서 메일로 식별해옴 on 3rd June 2024.

Present	Amendments	Reason
CHAPTER 3 HULL SURVEYS OF SHIPS SUBJECT TO THE ENHANCED SURVEY PROGRAMME **Section 6 Double Skin Bulk Carriers** **602. Annual Survey** **7. Examination of double-side skin void spaces for bulk carriers exceeding 20 years of age and of 150 m in length and upwards *(2024)*** Examination of double-side skin void spaces, for bulk carriers exceeding 20 years of age and of 150 m in length and upwards, are to be carried out when required as a consequence of the results of the Special Survey (as required by **604. 2.** (4)) and Intermediate Survey (as required by **603. 1.** (4) (a)). When considered necessary by the Administration, or when extensive corrosion exists, thickness measurements should be carried out.	**CHAPTER 3 HULL SURVEYS OF SHIPS SUBJECT TO THE ENHANCED SURVEY PROGRAMME** **Section 6 Double Skin Bulk Carriers** **602. Annual Survey** **7. Examination of double-side skin void spaces for bulk carriers exceeding 20 years of age and of 150 m in length and upwards *(2024)*** Examination of double-side skin void spaces, for bulk carriers exceeding 20 years of age and of 150 m in length and upwards, are to be carried out when required as a consequence of the results of the Special Survey (as required by **604. 2.** (4)) and Intermediate Survey (as required by **603. 1.** (4) (a)). When considered necessary by the Surveyor ~~Administration~~, or when extensive corrosion exists, thickness measurements should be carried out.	- Typo : KR Survey Panel Member와 협의됨 (English only)

PART 2

Present	Amendment	Note
〈Rules〉 Pt 2 CHAPTER 1 MATERIALS Section 4 Welding Procedure Qualification Tests 304. Rolled steels for low temperature service 10. Marking (1) Steels which have satisfactorily complied with the required tests are to be marked with the identification mark in accordance with the requirements in 110. (2) For steels to which the requirements given in Notes (1) of Table 2.1.17 and Notes (7) of Table 2.1.17-1 have been applied, "*TM*" and impact test temperature "*T*" are to be suffixed to the markings. (e.g. *RL* 325*TM*-50*T*) (3) For steel to which the requirements given in 5. (3), the specified value of the maximum yield stress or proof stress and "A" are to be suffixed to the markings. (e.g. *RL* 325*A*-440*A*) *(2023)*	〈Rules〉 Pt 2 CHAPTER 1 MATERIALS Section 4 Welding Procedure Qualification Tests 304. Rolled steels for low temperature service 10. Marking (1) Steels which have satisfactorily complied with the required tests are to be marked with the identification mark in accordance with the requirements in 110. (2) For steels to which the requirements given in Notes (2) of Table 2.1.17 and Notes (7) of Table 2.1.18 have been applied, "*TM*" and impact test temperature "*T*" are to be suffixed to the markings. (e.g. *RL* 325*TM*-50*T*) (3) For steel to which the requirements given in 5. (3), the specified value of the maximum yield stress or proof stress and "A" are to be suffixed to the markings. (e.g. *RL* 325*A*-440*A*) *(2023)*	Date: 2024.07.19. Person in charge: Choi Daegon Typo

Present

〈Rules〉 Pt 2

CHAPTER 2 WELDING

Section 4 Welding Procedure Qualification Tests

404. Tests for butt welded joints

4. Tensile tests

Table 2.2.6 Tensile Test Requirements for Butt Welded Joint

Kind of testing materials	Grade of testing materials	Tensile strength (N/mm^2)	Yield strength (N/mm^2)
Rolled steels for lower temperature service	*RL* 9*N*490	590 min.(1)	315 min.
		630 min.(2)	–
Steel pipes for low temperature service	*RLP*9	630 min.	–
Aluminium alloys	5754	190 min.	–
	5086	240 min.	–
	5083	275 min.	–
	5383	290 min.	–
	5059	330 min.	–
	6005A, 6061, 6082(3)	170 min.	–

(Notes)
(1) For test specimen in longitudinal direction
(2) For test specimen in transverse direction
(3) See notes (9) of **Table 2.2.4.**

Amendment

〈Rules〉 Pt 2

CHAPTER 2 WELDING

Section 4 Welding Procedure Qualification Tests

404. Tests for butt welded joints

4. Tensile tests

Table 2.2.6 Tensile Test Requirements for Butt Welded Joint

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		630 min.(2)	–
Steel pipes for low temperature service	*RLP*9	630 min.	–
Aluminium alloys	5754	190 min.	–
	5086	240 min.	–
	5083	275 min.	–
	5383	290 min.	–
	5059	330 min.	–
	6005A, 6061, 6082(3)	170 min.	–

(Notes)
(1) For test specimen in longitudinal direction
(2) For test specimen in transverse direction
(3) See notes (8) of **Table 2.2.4.**

Note

Date: 2024.07.19.
Person in charge: Choi Daegon

Typo

Present	Amendment	Note
〈Guidance〉 Pt 2 CHAPTER 2 WELDING Section 1 General 103. Special weldings 5. Test specimens (3) Impact test specimens are to be the charpy V-notch test specimen specified in **Table 2.1.3** of the Rules. In the impact test, one set of test specimens comprising three pieces are to be taken from every test assembly. The test specimens are to be taken alternately from the position "a" and from a position among "b" through "e" where the lowest value is recorded in the welding procedure qualification test, shows in Fig 2.2.7 of the Rules. This means that one set of three test specimens are taken from a test assembly at the position "a", hence other set of three test specimens are taken in the subsequent test assembly from the position among "b" through "e" where the lowest value is recorded, and this procedure is repeated. No impact test specimens is required in cases of stainless steel and aluminium alloy.	〈Guidance〉 Pt 2 CHAPTER 2 WELDING Section 1 General 103. Special weldings 5. Test specimens (3) Impact test specimens are to be the charpy V-notch test specimen specified in **Table 2.1.3** of the Rules. In the impact test, one set of test specimens comprising three pieces are to be taken from every test assembly. The test specimens are to be taken alternately from the position "a" and from a position among "b" through "e" where the lowest value is recorded in the welding procedure qualification test, shows in Fig 2.2.8 of the Rules. This means that one set of three test specimens are taken from a test assembly at the position "a", hence other set of three test specimens are taken in the subsequent test assembly from the position among "b" through "e" where the lowest value is recorded, and this procedure is repeated. No impact test specimens is required in cases of stainless steel and aluminium alloy.	Date: 2024.07.19. Person in charge: Choi Daegon Typo

PART 3

Present	Amendment	Reason
〈Guidance Pt.3〉 **Annex 3-3 Guidance for the Fatigue Strength Assessment of Ship Structures** **1. General** *(2020)* **〈omitted〉** **2. Definition of stress** In the fatigue analysis, three kinds of stresses; i. e. the nominal stress, the hot spot stress and notch stress can be used. The hot spot stress approach and edge stress approach are to be employed in this Guidance. (1) Nominal stress 〈omitted〉 (2) Hot spot stress (A) 〈omitted〉 (B) For the calculation of the hot spot stress, multiplying ~~notch~~ stress by stress concentration factor or the three dimensional finite element analysis is to be performed. Then, it can be determined by extrapolating maximum principal stresses outside the region affected by the weld geometry. The stress range near welding toe is to be used consistently depending on the effect by type and size of the finite element. (3) ~ (4) 〈omitted〉 **4. ~ 7. 〈omitted〉** ⚓	**〈Guidance Pt.3〉** **Annex 3-3 Guidance for the Fatigue Strength Assessment of Ship Structures** **1. General** *(2020)* **〈same as the current Rules〉** **2. Definition of stress** In the fatigue analysis, three kinds of stresses; i. e. the nominal stress, the hot spot stress and notch stress can be used. The hot spot stress approach and edge stress approach are to be employed in this Guidance. (1) Nominal stress 〈same as the current Rules〉 (2) Hot spot stress (A) 〈same as the current Rules〉 (B) For the calculation of the hot spot stress, multiplying nominal stress by stress concentration factor or the three dimensional finite element analysis is to be performed. Then, it can be determined by extrapolating maximum principal stresses outside the region affected by the weld geometry. The stress range near welding toe is to be used consistently depending on the effect by type and size of the finite element. (3) ~ (4) 〈same as the current Rules〉 **4. ~ 7. 〈same as the current Rules〉** ⚓	- Typo

PART 4

Present	Amendment	Note
〈Guidance Part 4〉 **CHAPTER 1 RUDDERS** **Section 4 Rudder Strength Calculation** **401. Rudder strength calculation 【See Rule】** **1. ~ 6. 〈omitted〉** **7. Type E rudders(Semi spade rudder with 2-conjugate elastic support)** (1) General data The data on the semi spade rudder with 2-conjugate elastic support models is as follows(See **Fig 4.1.7** and **Fig 4.1.8** of the Guidance): K_{11}, K_{22}, K_{12} : Rudder horn compliance constants calculated for rudder horn with 2-conjugate elastic supports The 2-conjugate elastic supports are defined in terms of horizontal displacements, y_i, by the following equations: at the lower rudder horn bearing: $y_1 = K_{12}B_2 - K_{22}B_1$ at the upper rudder horn bearing: $y_2 = K_{11}B_2 - K_{12}B_1$ y_1, y_2 : Horizontal displacements at the lower and upper rudder horn bearings, respectively (m) B_1, B_2 : Horizontal support forces at the lower and upper rudder horn bearings, respectively (kN) K_{11}, K_{22}, K_{12} : Obtained, in m/kN, from the following formulae: $K_{11} = 1.3\frac{\lambda^3}{3EJ_{1h}} + \frac{e^2\lambda}{GJ_{th}}$ $K_{22} = 1.3\left[\frac{\lambda^3}{3EJ_{1h}} + \frac{\lambda^2(d-\lambda)}{2EJ_{1h}}\right] + \frac{e^2\lambda}{GJ_{th}}$ $K_{12} = 1.3\left[\frac{\lambda^3}{3EJ_{1h}} + \frac{\lambda^2(d-\lambda)}{EJ_{1h}} + \frac{\lambda(d-\lambda)^2}{EJ_{1h}} + \frac{(d-\lambda)^3}{3EJ_{2h}}\right] + \frac{e^2d}{GJ_{th}}$	**〈Guidance Part 4〉** **CHAPTER 1 RUDDERS** **Section 4 Rudder Strength Calculation** **401. Rudder strength calculation 【See Rule】** **1. ~ 6. 〈same as present〉** **7. Type E rudders(Semi spade rudder with 2-conjugate elastic support)** (1) General data The data on the semi spade rudder with 2-conjugate elastic support models is as follows(See **Fig 4.1.7** and Fig 4.1.8 of the Guidance): K_{11}, K_{12}, K_{22} : Rudder horn compliance constants calculated for rudder horn with 2-conjugate elastic supports The 2-conjugate elastic supports are defined in terms of horizontal displacements, y_i, by the following equations: at the lower rudder horn bearing: $y_1 = -K_{12}B_2 - K_{22}B_1$ at the upper rudder horn bearing: $y_2 = -K_{11}B_2 - K_{12}B_1$ y_1, y_2 : Horizontal displacements at the lower and upper rudder horn bearings, respectively (m) B_1, B_2 : Horizontal support forces at the lower and upper rudder horn bearings, respectively (kN) K_{11}, K_{12}, K_{22} : Obtained, in m/kN, from the following formulae: $K_{11} = 1.3\frac{\lambda^3}{3EJ_{1h}} + \frac{e^2\lambda}{GJ_{th}}$ $K_{12} = 1.3\left[\frac{\lambda^3}{3EJ_{1h}} + \frac{\lambda^2(d-\lambda)}{2EJ_{1h}}\right] + \frac{e^2\lambda}{GJ_{th}}$ $K_{22} = 1.3\left[\frac{\lambda^3}{3EJ_{1h}} + \frac{\lambda^2(d-\lambda)}{EJ_{1h}} + \frac{\lambda(d-\lambda)^2}{EJ_{1h}} + \frac{(d-\lambda)^3}{3EJ_{2h}}\right] + \frac{e^2d}{GJ_{th}}$	Correction editorial error (UR S10 Rev.7 Corr2.) Correction error Correction editorial error (UR S10 Rev.7 Corr2.)

PART 6

Amendment	Note
# 〈RULE PART 6〉 # CHAPTER 2 CONTROL SYSTEMS ## Section 4 Computer Based Systems *(2024)* **407. Technical requirements on computer based systems** **3. Verification of technical requirements by the Society** (1) The implementation of the technical requirements provided in this article is verified by the Society as part of the system description (**404. 2** (3)), FAT (**404. 2** (7)) and SAT (**404. 3** (6)) described above.	-'407.' -〉 'this article' (Eng only) : According to the Introduction to the Classification Technical Rules, the rule mentioned as '407.' is within the same article, requiring a change in the text.

Amendment	Note
〈RULE PART6〉 **CHAPTER 1 ELECTRICAL EQUIPMENT** **Section 1 General** **103. Testing and inspection** **Table 6.1.1 Electrical equipment and cables subject to the approval and test (continued)** ***(2023)***	- The numbering order for the note has been postponed, and the new table number has been added.
(Notes) (6) To be complied with note (10) in ~~the table for tests of rotating machinery of 309. 16.~~ **Table 6.1.10.** ***(2018)***	
Section 3 Rotating Machinery **309. Testing and inspection**	- The new table number has been added.
5. Overspeed test 【See Guidance】 Rotating machines are to withstand the overspeed test specified in ~~the following~~ **Table 6.1.7** for 2 minutes.	- The new table number has been added.
6. Insulation resistance test (2) The minimum values of test voltages and insulation resistances are given in ~~the following~~ **Table 6.1.8**. ***(2017)***	- The new table number has been added.
16. Tests The tests of rotating machinery are ~~as following table~~ given in **Table 6.1.10** according to its kinds. ***(2024)***	- The new table number has been added.
605. Testing and inspection	- The new table number has been added.
6. Insulation resistance test Before and after the high voltage test, the insulation resistance test for all current-carrying parts are to be carried out and minimum values are to be given in ~~the following~~ **Table 6.1.20**.	

Amendment	Note
Section 9 Explosion-protected Electrical Equipment	
901. General	
4. Selection of electrical equipment according to the maximum surface temperature	- The new table number has been added.
(1) The electrical equipment is to be so selected that its maximum surface temperature will not reach the ignition temperature of any gas, vapour or dust which may be present. Maximum surface temperature according to temperature class of electrical equipment is ~~as following table~~ in **Table 6.1.23**.	
Section 15 High Voltage Electrical Installations	
1502. System Design 【See Guidance】	
3. Insulation	- The new table number has been added.
(1) Air clearance In general, phase-to-phase air clearances and phase-to-earth air clearances between non-insulated parts of equipment are to be not less than those specified in Table ~~as below~~ **6.1.31**. However, air clearance may be reduced subject to the Society's permission.	
1504. Power Transformers	- The new table number has been added.
2. Test voltage of High voltage test is given in the **Table 6.1.32.**	
1505. Cables 【See Guidance】	- The new table number has been added.
2. Test voltage of High voltage test is given in the **Table 6.1.33.**	
Section 16 Electric Propulsion Unit	
1603. Rotating machines (2017)	- The reference number has been changed to the new table number .
1. General	
(2) The rotors are to be so constructed that they will withstand for 2 minutes at an overspeed in accordance with the requirements in ~~**309. 5**~~ **Table 6.1.7**. However, the overspeed of turbo-generators and electromagnetic slip-couplings is to be 120% of the rated speed.	

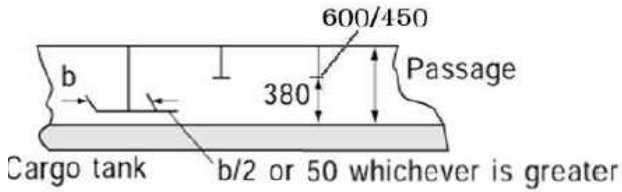
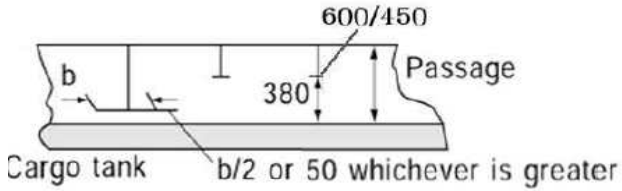
Amendment	Note
Section 17 Tests after Installation on Board **1701. Insulation resistance test** **3. Generators and motors** The insulation resistance of each generator and motor under working temperature is to be in accordance with the requirements in ~~309. 6~~ Table 6.1.8.	- The reference number has been changed to the new table number

Amendment	Note
# ⟨GUIDANCE PART6⟩ # CHAPTER 1 ELECTRICAL EQUIPMENT ## Section 3 Rotating Machinery **309. Testing and inspection** **8.** In application to **309. 16** of the Rules, "the Society's permission" of notes (9) in ~~the table~~ **Table 6.1.10** of the Guidance means type approval, test report's confirmation, etc. **【See Rule】** **9.** In application to **309. 16** of the Rules, "the Society's permission" of notes (10) in ~~the table~~ **Table 6.1.10** of the Guidance means type approval, design approval's confirmation, etc. **【See Rule】** ## Section 9 Explosion-protected Electrical Equipment **902. Special requirements 【See Rule】** The wording "as deemed appropriate by the Society" in **902.** of the Rules means the followings. **1. Flameproof type electrical equipment** (5) When installing equipment, its flameproof joints are not to be installed within the distance specified in ~~the following table~~ **Table 6.1.8** of the Guidance with respect to a bulkhead or solid object. ## Section 15 High Voltage Electrical Installations **1501. General 【See Rule】** **1.** The supply voltages and frequency specified in ~~the followings~~ **Table 6.1.19** of the Guidance are recognized as a standard.	- The numbering order for the note has been postponed, and the reference has been changed to the new table number. - The reference has been changed to the new table number. - The reference has been changed to the new table number.

PART 7

Present	Amendment	Note
〈Guidance〉 Pt 7	〈Guidance〉 Pt 7	
ANNEX 7-2 Guidance for the Container Securing Arrangements	**ANNEX 7-2 Guidance for the Container Securing Arrangements**	
8. Determination and application of forces	**8. Determination and application of forces**	
(1) Symbols and definitions (2019)	(1) Symbols and definitions (2019)	
(A) Definitions and symbols of terms are as follows.	(A) Definitions and symbols of terms are as follows.	
T_θ, T_ϕ : full period of pitch and roll of the ship (sec)	T_θ, T_ϕ : full period of roll and pitch of the ship (sec)	
Annex 7-12 Liquefaction Ore Bulk Cargoes	**Annex 7-12 Liquefaction of Ore Bulk Cargoes**	
3. Hull Strength	**3. Hull Strength**	
(5) Corrugated bulkheads	(5) Corrugated bulkheads	
(A)	(A)	
Face part: $C = \frac{1.5}{\sqrt{1+\left(\frac{t_w}{t_f}\right)^2}}$	Face part: $C = \frac{1.4}{\sqrt{1+\left(\frac{t_w}{t_f}\right)^2}}$	- English only
Web part: $C = 1.0$	Web part: $C = 1.0$	
t_f , t_w = thickness of plates of face part and web part, respectively (mm).	t_f , t_w = thickness of plates of face part and web part, respectively (mm).	

PART 7 (CH5, 6)

현 행	개 정 안	비 고
〈Rules〉 Pt 7 Ch 5 CHAPTER 5 LIQUEFIED GASS CARRIERS 103. Equivalents The construction and equipment, etc. which do not fall under the provisions of this Chapter but are considered to be equivalent to those required in this Chapter will be accepted by the Society. 305. Access to spaces in the cargo area (IGC Code 3.5)  Fig 7.5.8	〈Rules〉 Pt 7 Ch 5 CHAPTER 5 LIQUEFIED GASS CARRIERS 103. Equivalents The equivalence of alternative and novel features which deviate from or are not directly applicable to the Rules is to be in accordance with Pt 1, Ch 1 105. of Rules for the Classification of Steel Ships. 305. Access to spaces in the cargo area (IGC Code 3.5)  Fig 7.5.8	

Present	Amendment	Note
〈Guidance〉 Pt 7 Ch 5 CHAPTER 5 LIQUEFIED GASS CARRIERS 420. Construction process 6. Additional information on the gas-trial and cargo full loading test (4) The cargo full loading test to capacity specified in the preceding (1) (B) may be conducted simultaneously with the gas-trial indicated in the preceding (1) (A). (5) The survey items "at loading operation" ~~specified in **Table 7.5.6** of the Guidance in~~ the preceding (1) (B) may be substituted by the test items which were carried out during on board test and gas trial, and the survey items on "Condition of cargo tanks and other cargo containment systems after full loading" may be confirmed when the inspection for "discharging operation" is carried out.	〈Guidance〉 Pt 7 Ch 5 CHAPTER 5 LIQUEFIED GASS CARRIERS 420. Construction process 6. Additional information on the gas-trial and cargo full loading test (4) The cargo full loading test to capacity specified in the preceding (1) (B) may be conducted simultaneously with the gas-trial indicated in the preceding (1) (A). (5) The survey items at loading operation in the preceding (1) (B) may be substituted by the test items which were carried out during on board test and gas trial, and the survey items on "Condition of cargo tanks and other cargo containment systems after full loading" may be confirmed when the inspection for "discharging operation" is carried out.	

Present	Amendment	Note
〈Guidance〉 Pt 7 Ch 5	〈Guidance〉 Pt 7 Ch 5	
Annex 7A-8 Guidelines for Safety Margin of Cargo Containment System	**Annex 7A-8 Guidelines for Safety Margin of Cargo Containment System**	
CHAPTER 2 SAFETY MARGIN	**CHAPTER 2 SAFETY MARGIN**	
Section 1 Type A Independent Tanks	**Section 1 Type A Independent Tanks**	
201. Allowable stress for ultimate and accidental design conditions The allowable membrane equivalent stresses for primarily constructed of plane surfaces, applied for finite element analysis, shall not exceed a lesser of $0.83R_e$ or $0.5R_m$ for nickel steels and carbon-manganese steels and a lesser of $0.83R_e$ or $0.4R_m$ for austenitic steels and aluminium alloys. The thickness of the skin plate and the size of the stiffener shall not be less than those required for type A independent tanks. If 9% nickel steel is used for the plates of the cargo tank, the allowable stress $0.75R_e$ is applied to the calculation of the tank plates.	**201. Allowable stress for ultimate and accidental design conditions** The allowable membrane equivalent stresses for primarily constructed of plane surfaces, applied for finite element analysis, shall not exceed a lesser of $0.83R_e$ or $0.5R_m$ for nickel steels and carbon-manganese steels and a lesser of $0.83R_e$ or $0.4R_m$ for austenitic steels and aluminium alloys. The thickness of the skin plate and the size of the stiffener shall not be less than those required for type A independent tanks.	
Section 3 Type C Independent Tanks	**Section 3 Type C Independent Tanks**	
301. Allowable stress for ultimate and accidental design conditions For horizontal cylindrical tanks made of C-Mn steel supported in saddles, the equivalent stress, σ_e, in the stiffening rings shall not exceed a lesser of $0.85R_e$ or $0.57R_m$ if calculated using finite element method: $\sigma_e = \sqrt{(\sigma_n + \sigma_b)^2 + 3\tau^2}$ where, σ_n : nominal stress in the circumferential direction of the stiffening ring($\mathrm{N/mm^2}$) σ_b : bending stress in the circumferential direction of the stiffening ring($\mathrm{N/mm^2}$) τ : shear stress in the stiffening ring($\mathrm{N/mm^2}$)	**301. Allowable stress for ultimate and accidental design conditions** 〈delete〉	

Present	Amendment	Note
〈Guidance〉 Pt 7 Ch 5 Section 4 Membrane Type Tanks **402. Allowable stress and buckling pressure of membrane systems** Sloshing load due to ship motion is governing factor in comparison with other loads such as cooling-down, ship loading, vibration, static heel or collision case. In order to evaluate the structural strength of membrane, PUF, plywood and mastic in cargo containment system against sloshing load for ultimate and accidental design conditions, the following criteria is recommended. - allowable equivalent stress : $\sigma_{eq} \leq 0.67R_e$ - allowable buckling pressure : $P_c < 0.9P_{cr}$ P_{cr} is the critical buckling pressure which should be based on the acknowledged experimental data for each material and the standard recognized by the Society	〈Guidance〉 Pt 7 Ch 5 Section 4 Membrane Type Tanks **402. Allowable stress and buckling pressure of membrane systems** Sloshing load due to ship motion is governing factor in comparison with other loads such as cooling-down, ship loading, vibration, static heel or collision case. In order to evaluate the structural strength of membrane, PUF, plywood and mastic in cargo containment system against sloshing load for ultimate and accidental design conditions, the following criteria is recommended. - allowable equivalent stress : $\sigma_{eq} \leq 0.60R_e$ - allowable buckling pressure : $P_c < 0.9P_{cr}$ P_{cr} is the critical buckling pressure which should be based on the acknowledged experimental data for each material and the standard recognized by the Society	

PART 8

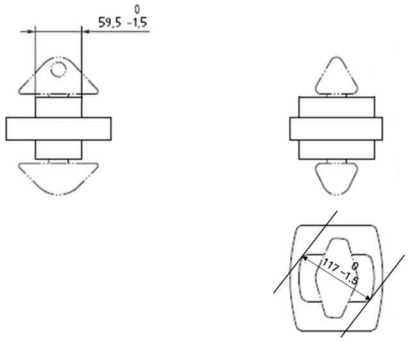
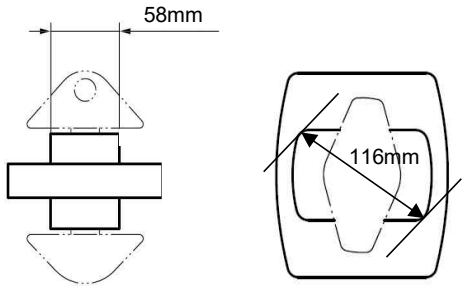
Present	Amendment	Note
⟨Guidance Pt 8⟩ CHAPTER 7 CONTAINMENT OF FIRE Section 1 ~ Section 5 ⟨omitted⟩ Section 6 Ventilation Systems [See Rule] **601. General ⟨omitted⟩** **602. Arrangement of ducts** **1.** In applying **602. 4** of the Rules, "A-60" class insulation" is, as a standard, to be an insulation with rock-wool approved as non-combustible material, or insulation approved as "A-60" class standard and arrangement of ducts are to be in accordance with **Fig 8.7.5** of the Guidance. **2.** In applying **602.** and **605.** of the Rules for determining fire insulation for trunks and ducts which pass through an enclosed space, the term "pass through" means the part of the trunk/duct contiguous to the enclosed space. (see **Fig 8.7.6** of the Guidance.)	⟨Guidance Pt 8⟩ CHAPTER 7 CONTAINMENT OF FIRE Section 1 ~ Section 5 ⟨same as the present⟩ Section 6 Ventilation Systems [See Rule] **601. General ⟨same as the present⟩** **602. Arrangement of ducts** **1.** In applying **602. 4** of the Rules, "A-60" class insulation" is, as a standard, to be an insulation with rock-wool approved as non-combustible material, or insulation approved as "A-60" class standard and arrangement of ducts are to be in accordance with **Fig 8.7.5** of the Guidance. **2.** In applying **602.** and **605.** 1 & 2 of the Rules for determining fire insulation for trunks and ducts which pass through an enclosed space, the term "pass through" means the part of the trunk/duct contiguous to the enclosed space. (see **Fig 8.7.6** of the Guidance.)	

PART 13

Present	Amendment	Note
⟨RULE PART 13⟩ Sub-Part 1 Chapter 5 HULL GIRDER STRENGTH Section 1 HULL GIRDER YIELDING STRENGTH SYMBOLS For symbols not defined in this section, refer to Ch 1, Sec 4. ⟨omitted⟩ f_B : Heading correction factor, to be taken as: f_B = 1.05 for seagoing conditions. f_B = 1.0 for ballast water exchange at sea, harbour/sheltered water and accidental flooded design load scenarios.	⟨RULE PART 13⟩ Sub-Part 1 Chapter 5 HULL GIRDER STRENGTH Section 1 HULL GIRDER YIELDING STRENGTH SYMBOLS For symbols not defined in this section, refer to Ch 1, Sec 4. ⟨same as the presnt⟩ f_β : Heading correction factor, to be taken as: f_β = 1.05 for seagoing conditions. f_β = 1.0 for ballast water exchange at sea, harbour/sheltered water and accidental flooded design load scenarios.	- Heading correction factor, f_B replaced with f_β (English only)

OTHER RULES AND GUIDANCE

Present	Amendment	Note
〈Guidance for Floating Production Units〉 **CHAPTER 1 GENERAL** **Section 1 General** **102. Classification of units** 1. Purpose of units (3) FSO (Floating Production and Storage) FSO is a unit with systems for the storage and off-loading of produced crude oil and petroleum gases.	〈Guidance for Floating Production Units〉 **CHAPTER 1 GENERAL** **Section 1 General** **102. Classification of units** 1. Purpose of units (3) FSO (Floating Storage and Offloading) FSO is a unit with systems for the storage and offloading of produced crude oil and petroleum gases.	- Edited for translation error.

Present	Amendment	Note
〈Guidance for Type Approval〉 CHAPTER 3 TYPE APPROVAL 2504. Test requirements of additional special feature notation HHS(High Holding Securing) *(2021)* 6. The twistlock housing should be fastened with at least one bolt each at the top and bottom. Also the dimension of the neck of the twist lock should be equal to or greater than the value according to **Fig. 3.25.5**. In this case, the neck of the twistlock should be symmetrical in the length/width direction. *(2023)*  Fig. 3.25.5 *(2024)* CHAPTER 4 DESIGN APPROVAL Section 3 Container Lashing calculation program	〈Guidance for Type Approval〉 CHAPTER 3 TYPE APPROVAL 2504. Test requirements of additional special feature notation HHS(High Holding Securing) *(2021)* 6. The bottom twistlock housing should be fastened with at least one bolt each at the top and bottom. Also the dimension of the neck of the twist lock should be equal to or greater than the value according to **Fig. 3.25.5**. In this case, the neck of the twistlock should be symmetrical in the length/width direction. *(2023)*  그림 3.25.5 *(2024)* CHAPTER 4 DESIGN APPROVAL Section 3 Container Lashing Calculation Program	- English only