RULES FOR CLASSIFICATION OF HIGH SPEED AND LIGHT CRAFTS

(Development Review : External opinion inquiry)

2019. 09.

Machinery Rule Development Team

- Main Amendments -

(1) Effective date : 1 Jul. 2020 (Date of which contracts for construction are signed)

◉ Pt 1 The definitions have been amended.

◉ Pt 5 The requirements of Machinery installations have been amended.

- The requirements o f fuel oil pumps, lubricating oil pumps and cooling pumps are to be complied with Pt 5 of Rules for the Classification of Steel Ships

Present	Amendment	Reason
PART 1 CLASSIFICATION AND SURVEYS **CHAPTER 1 CLASSIFICATION** **Section 1 General** **101. ~ 102. \<omitted\>** **103. Definitions** The definitions and symbols of terms are as follows. (1) Light craft Light craft means a craft which is complying with the followings. (A) A craft with a full load displacement of not more than $(0.13\,LB)^{1.5}$ (ton) (2) High-speed craft High-speed craft means a craft which complies with the above mentioned in (1), capable of maximum speed whichever is greater than the followings (A) 25 (kts) (B) $7.16\,\triangledown^{0.1667}$ (kts) or $3.7\,\triangledown^{0.1667}$ (m/s) ($\triangledown$ is in accordance with **Pt 3, Ch 1, 103.**) (3) V, L, B and full load displacement ($\varDelta$) As defined in **Pt 3, Ch 1, Sec 1.** (4) Passenger craft Passenger craft means a craft which carries more than twelve passengers. (5) Cargo craft Cargo craft means any high-speed craft other than passenger craft, and which is capable of maintaining the main functions and safety systems of unaffected spaces, after damage in any one compartment on board. (6) Cargo spaces Cargo spaces mean all spaces other than special category spaces and ro-ro spaces used for cargo and trunks to such spaces. For the ships carrying dangerous goods, "cargo spaces" include ro-ro spaces, special category spaces and open deck spaces.	**PART 1 CLASSIFICATION AND SURVEYS** **CHAPTER 1 CLASSIFICATION** **Section 1 General** **101. ~ 102. \<omitted\>** **103. Definitions** The definitions and symbols of terms are as follows. (1) **Light craft** means a craft which is complying with the followings. (A) A craft with a full load displacement of not more than $(0.13\,LB)^{1.5}$ (ton) (2) **High-speed craft** means a craft which complies with the above mentioned in (1), capable of maximum speed whichever is greater than the followings (A) 25 (kts) (B) $7.16\,\triangledown^{0.1667}$ (kts) or $3.7\,\triangledown^{0.1667}$ (m/s) ($\triangledown$ is in accordance with **Pt 3, Ch 1, 103.**) (3) V, L, B and full load displacement ($\varDelta$) As defined in **Pt 3, Ch 1, Sec 1.** (4) **Passenger craft** means a craft which carries more than twelve passengers. (5) **Cargo craft** means any high-speed craft other than passenger craft, and which is capable of maintaining the main functions and safety systems of unaffected spaces, after damage in any one compartment on board. (6) **Cargo spaces** are spaces used for cargo, cargo oil tanks, tanks for other liquid cargo and trunks to such spaces.	(ameded) - Definitions : align with SOLAS and Pt 8 of Rules for the Classification of Steel Ships

Present	Amendment	Reason
(7) Datum Datum means a watertight deck or equivalent structure of a non-watertight deck covered by a weathertight structure of adequate strength to maintain the weathertight integrity and fitted with weathertight closing appliances. (8) Design waterline Design waterline means the waterline corresponding to the maximum operational weight of the craft with no lift or propulsion machinery active. (9) Light weight Lightweight means the displacement of the craft in tonnes without cargo, fuel, lubricating oil, ballast water, fresh water and feed water in tanks, consumable stores, passengers and crew and their effects. (10) Ro-Ro craft Ro-Ro craft means a craft fitted with one or more ro-ro spaces. (11) Oil fuel unit Oil fuel unit includes any equipment for the preparation of oil fuel and delivery of oil fuel, heated or not, to boilers and main engines (including gas turbines) at a pressure of more than $0.18\,\mathrm{N/mm^2}$. (12) Ro-Ro spaces Ro-Ro spaces mean spaces not normally subdivided in any way and normally extending to either a substantial length or the entire length of the craft in which motor vehicles with fuel in their tanks for their own propulsion and/or goods [packaged or in bulk, in or on rail or road cars, vehicles (including road or rail tankers), trailers, containers, pallets, demountable tanks or in or on similar stowage units or other receptacles] can be loaded and unloaded, normally in a horizontal direction.	(7) **Datum** means a watertight deck or equivalent structure of a non-watertight deck covered by a weathertight structure of adequate strength to maintain the weathertight integrity and fitted with weathertight closing appliances. (8) **Design waterline** means the waterline corresponding to the maximum operational weight of the craft with no lift or propulsion machinery active. (9) **Light weight** is the displacement of a ship in tonnes without cargo, fuel, lubricating oil, ballast water, fresh water and feedwater in tanks, consumable stores, and passengers and crew and their effects. The weight of mediums on board for the fixed fire-fighting systems (e.g. freshwater, CO2, dry chemical powder, foam concentrate, etc.) is to be included in the lightweight and lightship condition. (10) **Ro-Ro craft** means a craft fitted with one or more ro-ro spaces. (11) **Oil fuel unit** is the equipment used for the preparation of oil fuel for delivery to an oil-fired boiler, or equipment used for the preparation for delivery of heated oil to an internal combustion engine, and includes any oil pressure pumps, filters and heaters dealing with oil at a pressure of more than 0.18 MPa. (12) **Ro-ro spaces** are spaces not normally subdivided in any way and normally extending to either a substantial length or the entire length of the ship in which motor vehicles with fuel in their tanks for their own propulsion or goods (packaged or in bulk, in or on rail or road cars, vehicles (including road or rail tankers), trailers, containers, pallets, demountable tanks or in or on similar stowage units or other receptacles) can be loaded and unloaded normally in a horizontal direction. "Spaces not normally subdivided in any way" means those spaces which are not subdivided in longitudinal direction by watertight bulkheads or gastight bulkheads.	(ameded) - Definitions : align with SOLAS and Pt 8 of Rules for the Classification of Steel Ships

Present	Amendment	Reason
(13) Open ro-ro spaces 　Open ro-ro spaces mean those ro-ro spaces: (A) to which any passengers carried have access; and (B) either 　(a) are open at both ends 　(b) have an opening at one end and are provided with permanent openings distributed in the side plating or deckhead or from above, having a total area of at least 10 % of the total area of the space sides. (14) Special category spaces 　Special category spaces mean those enclosed ro-ro spaces to which passengers have access. Special category spaces may be accommodated on more than one deck provided that the total overall clear height for vehicles does not exceed 10 m. (15) Weather deck 　Weather deck means a deck which is completely exposed to the weather from above and from at least two sides.	(13) **Open ro-ro spaces** are those ro-ro spaces that are either open at both ends or have an opening at one end, and are provided with adequate natural ventilation effective over their entire length through permanent openings distributed in the side plating or deckhead or from above, having a total area of at least 10 % of the total area of the space sides. (14) **Special category spaces** are those enclosed vehicle spaces above and below the bulkhead deck, into and from which vehicles can be driven and to which passengers have access. Special category spaces may be accommodated on more than one deck provided that the total overall clear height for vehicles does not exceed 10 m. (15) **Weather deck** is a deck which is completely exposed to the weather from above and from at least two sides.	(ameded) - Definitions : align with SOLAS and Pt 8 of Rules for the Classification of Steel Ships

Present	Amendment	Reason
PART 5 MACHINERY INSTALLATIONS **CHAPTER 2 AUXILIARIES AND PIPING ARRANGEMENT** **Section 5 Fuel Oil System** 503. Fuel oil <u>filters and pumps</u> **1.** The fuel oil pipes of the main engine and essential auxiliary engines are to be provided with filters which can be cleaned without interruption to the fuel oil supply. **2.** Where two or more main engines operating respectively are provided, and where it is possible to give a navigable speed even if one of the engines is out of order the duplex filters may be omitted. **3.** Where two or more main engines operating respectively are provided, and where it is possible to give a navigable speed even if one of the engines attached with their own fuel oil pumps is out of order, the stand-by fuel oil pumps may be omitted. **Section 6 Lubricating Oil System** 601. **Lubricating oil filters** Where a forced lubricating system (including gravity supply from head tank) is adopted for lubrication of engines, efficient lubrication oil filters are to be provided. The filters used for the lubricating oil systems of the main engine, power transmission of propeller shafting and controllable pitch propeller system are to be capable of being cleaned without stopping the supply of filtered lubricating oil. 602. **Lubricating oil pumps** Where engines attached with their own fuel oil pumps comply with the following, the stand-by lubricating oil pumps may be omitted. (1) Engines which do not require lubrication before starting, according to their properties (2) Where two or more main engines operating respectively are provided, and where it is possible to give a navigable speed, even if one of the engines is out of order	**PART 5 MACHINERY INSTALLATIONS** **CHAPTER 2 AUXILIARIES AND PIPING ARRANGEMENT** **Section 5 Fuel Oil System** 503. **Fuel oil pumps and filters** **1.** Fuel oil pumps of internal combustion engines are to be in accordance with the requirements in **Pt 5, Ch 6, 903. 1** of **Rules for the Classification of Steel Ships.** **2.** Fuel oil filters of internal combustion engines are to be in accordance with the requirements in **Pt 5, Ch 6, 903. 2** of **Rules for the Classification of Steel Ships.** **3.** <u><deleted></u> **Section 6 Lubricating Oil System** 601. **Lubricating oil pumps and filters** **1.** Lubricating oil pumps of internal combustion engines are to be in accordance with the requirements in **Pt 5, Ch 6, 802.** of **Rules for the Classification of Steel Ships.** **2.** Where engines which do not require lubrication before starting, the stand-by lubricating oil pumps may be omitted. **3.** Fuel oil filters of internal combustion engines are to be in accordance with the requirements in **Pt 5, Ch 6, 804.** of **Rules for the Classification of Steel Ships.** 602. **<deleted>**	(amended) –The requirements o f fuel oil pumps, lubricating oil pumps are to be complied with Pt 5 of Rules for the Classification of Steel Ships

Present	Amendment	Reason
Section 7 Cooling Water System	**Section 7 Cooling Water System**	(amended)
		−The requirements o f cooling
701. Cooling water system	**701. Cooling water pumps**	pumps are to be complied
		with Pt 5 of Rules for the
1. Where main engines and essential auxiliary engines are cooled with water, the cooling system is to be so arranged that the stand-by cooling water pumps can be used even if one of the cooling water pumps is out of use.	**1.** Cooling water pumps are to be in accordance with the re-quirements in **Pt 5, Ch 6, 701.** and **702.** of **Rules for the Classification of Steel Ships.**	Classification of Steel Ships
2. Where two or more main engines operating respectively are provided, and where it is possible to give a navigable speed even if one of the engines attached with their own cooling water pumps is out of order, the stand-by cooling water pumps may be omitted.	**2. ~ 5.** <deleted>	
3. In case of engines attached with their own cooling water pumps, the stand-by cooling water pumps may be omitted.		
4. The sea inlet lines are to be provided with strainers which can be cleaned without interruption to the sea water supply. In small crafts, however, these strainers may be omitted with approval of the Society. **[See Guidance]**		
5. Sea water cooling systems for main engines and essential auxiliary engines are to be connected to two sea inlets part-ed respectively as far as practicable.		

Amended the Rules for the Classification of High Speed and Light Crafts

Rule Development Team

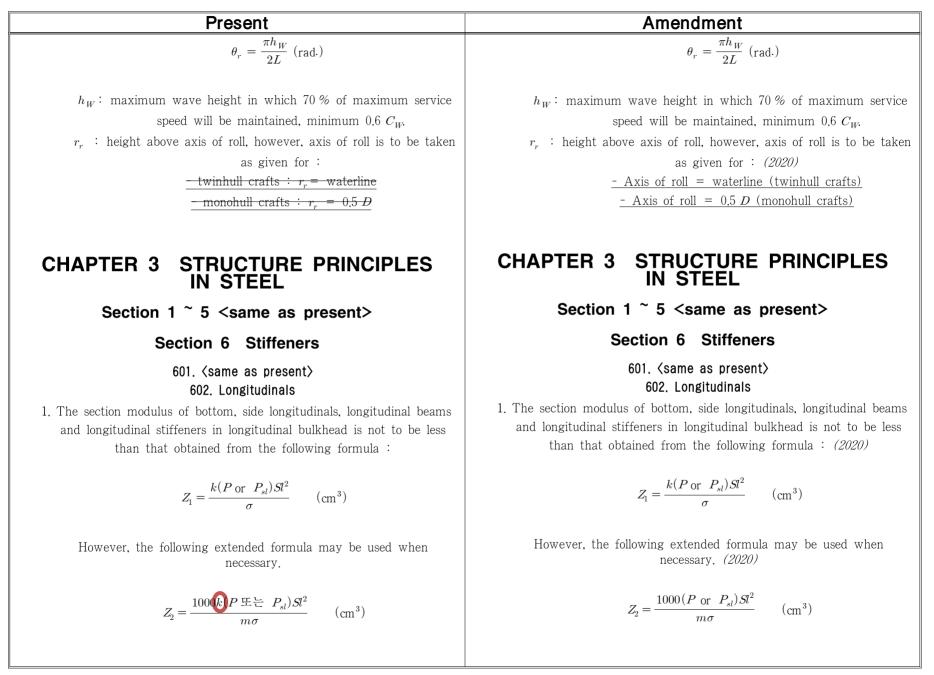| Present	Amendment	Reason

PART 1 CLASSIFICATION AND SURVEYS
 	
# CHAPTER 1 CLASSIFICATION 	
 	
## Section 1 General 	
 	
101. ~ 102. <omitted>
103. Definitions
 	
The definitions and symbols of terms are as follows.
(1) <u>Light craft</u>
  <u>Light craft</u> means a craft which is complying with the followings.
  (A) A craft with a full load displacement of not more than $(0.13\,LB)^{1.5}$ (ton)
(2) <u>High-speed craft</u>
  <u>High-speed craft</u> means a craft which complies with the above mentioned in (1), capable of maximum speed whichever is greater than the followings
  (A) 25 (kts)
  (B) 7.16 $\nabla^{0.1667}$ (kts) or 3.7 $\nabla^{0.1667}$ (m/s)
    (∇ is in accordance with **Pt 3, Ch 1, 103.**)
(3) V, L, B and full load displacement (Δ)
  As defined in **Pt 3, Ch 1, Sec 1.**
(4) <u>Passenger craft</u>
  <u>Passenger craft</u> means a craft which carries more than twelve passengers.
(5) <u>Cargo craft</u>
  <u>Cargo craft</u> means any high-speed craft other than passenger craft, and which is capable of maintaining the main functions and safety systems of unaffected spaces, after damage in any one compartment on board.
(6) <u>Cargo spaces</u>
  <u>Cargo spaces mean all spaces other than special category spaces and ro-ro spaces used for cargo and trunks to such spaces. For the ships carrying dangerous goods, "cargo spaces" include ro-ro spaces, special category spaces and open deck spaces.</u>
	PART 1 CLASSIFICATION AND SURVEYS
	
	# CHAPTER 1 CLASSIFICATION
	
	## Section 1 General
	
	101. ~ 102. <omitted>
	103. Definitions
	
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	(1) **Light craft** means a craft which is complying with the followings.
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	    (∇ is in accordance with **Pt 3, Ch 1, 103.**)
	
	(3) V, L, B and full load displacement (Δ)
	  As defined in **Pt 3, Ch 1, Sec 1.**
	(4) **Passenger craft** means a craft which carries more than twelve passengers.
	
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	(6) **Cargo spaces** are spaces used for cargo, cargo oil tanks, tanks for other liquid cargo and trunks to such spaces.
		(ameded)
		- Definitions : align with SOLAS and Pt 8 of **Rules for the Classification of Steel Ships**

Present	Amendment	Reason
(7) <u>Datum</u> <u>Datum</u> means a watertight deck or equivalent structure of a non-watertight deck covered by a weathertight structure of adequate strength to maintain the weather-tight integrity and fitted with weathertight closing appliances. (8) <u>Design waterline</u> <u>Design waterline</u> means the waterline corresponding to the maximum operational weight of the craft with no lift or propulsion machinery active. (9) <u>Light weight</u> <u>Lightweight</u> means the displacement of the craft in tonnes without cargo, fuel, lubricating oil, ballast water, fresh water and feed water in tanks, consumable stores, passengers and crew and their effects. (10) <u>Ro-Ro craft</u> <u>Ro-Ro craft</u> means a craft fitted with one or more ro-ro spaces. (11) <u>Oil fuel unit</u> <u>Oil fuel unit includes any equipment for the preparation of oil fuel and delivery of oil fuel, heated or not, to boilers and main engines (including gas turbines) at a pressure of more than 0.18 N/mm².</u> (12) <u>Ro-Ro spaces</u> <u>Ro-Ro spaces</u> mean spaces not normally subdivided in any way and normally extending to either a substantial length or the entire length of the craft in which motor vehicles with fuel in their tanks for their own pro-pulsion and/or goods [packaged or in bulk, in or on rail or road cars, vehicles (including road or rail tankers), trailers, containers, pallets, demountable tanks or in or on similar stowage units or other receptacles] can be loaded and unloaded, normally in a horizontal direction.	(7) **Datum** means a watertight deck or equivalent structure of a non-watertight deck covered by a weathertight structure of adequate strength to maintain the weather-tight integrity and fitted with weathertight closing appliances. (8) **Design waterline** means the waterline corresponding to the maximum operational weight of the craft with no lift or propulsion machinery active. (9) **Light weight** is the displacement of a ship in tonnes without cargo, fuel, lubricating oil, ballast water, fresh water and feedwater in tanks, consumable stores, and passengers and crew and their effects. <u>The weight of mediums on board for the fixed fire-fighting systems (e.g. freshwater, CO2, dry chemical powder, foam con-centrate, etc.) is to be included in the lightweight and lightship condition.</u> (10) **Ro-Ro craft** means a craft fitted with one or more ro-ro spaces. (11) **Oil fuel unit** <u>is the equipment used for the prepara-tion of oil fuel for delivery to an oil-fired boiler, or equipment used for the preparation for delivery of heat-ed oil to an internal combustion engine, and includes any oil pressure pumps, filters and heaters dealing with oil at a pressure of more than 0.18 MPa.</u> (12) **Ro-ro spaces** are spaces not normally subdivided in any way and normally extending to either a substantial length or the entire length of the ship in which motor vehicles with fuel in their tanks for their own pro-pulsion or goods (packaged or in bulk, in or on rail or road cars, vehicles (including road or rail tankers), trail-ers, containers, pallets, demountable tanks or in or on similar stowage units or other receptacles) can be loaded and unloaded normally in a horizontal direction. <u>"Spaces not normally subdivided in any way" means those spaces which are not subdivided in longitudinal direction by watertight bulkheads or gastight bulkheads.</u>	(ameded) - Definitions : align with SOLAS and Pt 8 of Rules for the Classification of Steel Ships

Present	Amendment	Reason

(13) Open ro-ro spaces
Open ro-ro spaces mean those ro-ro spaces:
(A) to which any passengers carried have access; and
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  (a) are open at both ends
  (b) have an opening at one end and are provided with permanent openings distributed in the side plating or deckhead or from above, having a total area of at least 10 % of the total area of the space sides.
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  Special category spaces mean those enclosed ro-ro spaces to which passengers have access. Special category spaces may be accommodated on more than one deck provided that the total overall clear height for vehicles does not exceed 10 m.
(15) Weather deck
  Weather deck means a deck which is completely exposed to the weather from above and from at least two sides.
	(13) **Open ro-ro spaces** are those ro-ro spaces that are either open at both ends or have an opening at one end, and are provided with adequate natural ventilation effective over their entire length through permanent openings distributed in the side plating or deckhead or from above, having a total area of at least 10 % of the total area of the space sides.
	
	(14) **Special category spaces** are those enclosed vehicle spaces above and below the bulkhead deck, into and from which vehicles can be driven and to which passengers have access. Special category spaces may be accommodated on more than one deck provided that the total overall clear height for vehicles does not exceed 10 m.
	(15) **Weather deck** is a deck which is completely exposed to the weather from above and from at least two sides.
		(ameded)
		– Definitions : align with SOLAS and Pt 8 of Rules for the Classification of Steel Ships

Present	Amendment
# PART 1~2〈same as present〉	# PART 1~2〈same as present〉

PART 3 HULL STRUCTURES

CHAPTER 1 \<same as present>

CHAPTER 2   DESIGN LOADS

Section 1   General \<same as present>

Section 2   Accelerations

201. ~ 202. 〈same as present〉

1. 〈same as present〉

2. Transverse acceleration is not to be less than in the formula below. However, when above the axis of roll, the static component $g_o \sin \theta_r$ is to be added.

$$a_t = \left(2\frac{\pi}{T_R}\right)^2 \theta_r r_r \quad (\text{m/s}^2)$$

T_R : roll period, taken from following formula. However $V/\sqrt{L}$ need not be taken as greater than 4.0.

$$T_R = \frac{\sqrt{L}}{1.05 + 0.175\dfrac{V}{\sqrt{L}}} \quad (s)$$

θ_r = maximum roll inclination, taken from the following formula:

PART 3 HULL STRUCTURES

CHAPTER 1 \<same as present>

CHAPTER 2   DESIGN LOADS

Section 1   General \<same as present>

Section 2   Accelerations

201. ~ 202. 〈same as present〉

1. 〈same as present〉

2. Transverse acceleration is not to be less than in the formula below. However, when above the axis of roll, the static component $g_o \sin \theta_r$ is to be added.

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T_R : roll period, taken from following formula. However $V/\sqrt{L}$ need not be taken as greater than 4.0.

$$T_R = \frac{\sqrt{L}}{1.05 + 0.175\dfrac{V}{\sqrt{L}}} \quad (s)$$

θ_r = maximum roll inclination, taken from the following formula:

Present	Amendment
$$\theta_r = \frac{\pi h_W}{2L} \ \text{(rad.)}$$	$$\theta_r = \frac{\pi h_W}{2L} \ \text{(rad.)}$$

Present	Amendment
h_W : maximum wave height in which 70 % of maximum service speed will be maintained, minimum 0.6 C_W. r_r : height above axis of roll, however, axis of roll is to be taken as given for : ~~twinhull crafts : r_r = waterline~~ ~~monohull crafts : r_r = 0.5 D~~	h_W : maximum wave height in which 70 % of maximum service speed will be maintained, minimum 0.6 C_W. r_r : height above axis of roll, however, axis of roll is to be taken as given for : *(2020)* - Axis of roll = waterline (twinhull crafts) - Axis of roll = 0.5 D (monohull crafts)

Present	Amendment
# CHAPTER 3 STRUCTURE PRINCIPLES IN STEEL ## Section 1 ~ 5 <same as present> ## Section 6 Stiffeners 601. ⟨same as present⟩ 602. Longitudinals 1. The section modulus of bottom, side longitudinals, longitudinal beams and longitudinal stiffeners in longitudinal bulkhead is not to be less than that obtained from the following formula : $$Z_1 = \frac{k(P \text{ or } P_{sl})Sl^2}{\sigma} \quad (\text{cm}^3)$$ However, the following extended formula may be used when necessary. $$Z_2 = \frac{1000k(P \text{ 또는 } P_{sl})Sl^2}{m\sigma} \quad (\text{cm}^3)$$	# CHAPTER 3 STRUCTURE PRINCIPLES IN STEEL ## Section 1 ~ 5 <same as present> ## Section 6 Stiffeners 601. ⟨same as present⟩ 602. Longitudinals 1. The section modulus of bottom, side longitudinals, longitudinal beams and longitudinal stiffeners in longitudinal bulkhead is not to be less than that obtained from the following formula : *(2020)* $$Z_1 = \frac{k(P \text{ or } P_{sl})Sl^2}{\sigma} \quad (\text{cm}^3)$$ However, the following extended formula may be used when necessary. *(2020)* $$Z_2 = \frac{1000(P \text{ or } P_{sl})Sl^2}{m\sigma} \quad (\text{cm}^3)$$

Present	Amendment

Present

l : span of the stiffeners (m), defined in Ch 3, 107.

S : spacing of stiffeners (m).

m : bending moment factor, defined in Table 3.3.12, for load and boundary conditions, not defined in Table 3.3.12 m-values are directly from general elastic bending theory.

K : material factor, defined in Table 3.3.2.

P or P_{sl} : load or impact pressure, defined in Ch 2.

k : 83

σ : allowable stress, defined in Table 3.3.9. Between specified regions the s-value may vary linearly.

2. The bottom longitudinals should preferably be continuous through transverse members. If they are to be cut at transverse members, continuous brackets connecting the ends of the longitudinals are to be fitted.

3. In case of a keel plating, the distance between the center girder and the first longitudinal should not exceed 400 mm.

Table 3.3.9   Allowable Stress of Longitudinals

Locations		σ (N/mm^2)
Within 0.4 L	Deck or bottom	95, $Z_A = Z_R$ (150 for planning slam) 160, $Z_A \geq 2Z_R$
	Within 0.25 D above and below the neutral axis	~~160~~
0.1 L from the perpendiculars		~~160~~
Decks and tops of short superstructures		~~160~~

603. ~612. 〈same as present〉
Section 7 ~ 8 <same as present>

Amendment

l : span of the stiffeners (m), defined in Ch 3, 107.

S : spacing of stiffeners (m).

m : bending moment factor, defined in Table 3.3.12, for load and boundary conditions, not defined in Table 3.3.12 m-values are directly from general elastic bending theory.

K : material factor, defined in Table 3.3.2.

P or P_{sl} : load or impact pressure, defined in Ch 2.

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3. In case of a keel plating, the distance between the center girder and the first longitudinal should not exceed 400 mm.

Table 3.3.9   Allowable Stress of Longitudinals *(2020)*

Locations		σ (N/mm^2)
Within 0.4 L	Deck or bottom	95, $Z_A = Z_R$ (150 for planning slam) 160, $Z_A \geq 2Z_R$
	Within 0.25 D above and below the neutral axis	160/K
0.1 L from the perpendiculars		160/K
Decks and tops of short superstructures		160/K

603. ~612. 〈same as present〉
Section 7 ~ 8 <same as present>

Present	Amendment
# CHAPTER 4 STRUCTURE PRINCIPLES IN ALUMINIUM ALLOY	# CHAPTER 4 STRUCTURE PRINCIPLES IN ALUMINIUM ALLOY
## Section 1 <same as present>	## Section 1 <same as present>
## Section 2 Materials and Welding	## Section 2 Materials and Welding
201. Materials	**201. Materials**
1. The materials used for hull construction and equipment shall comply with the Pt 2, Ch 1, unless otherwise specified.	1. The materials used for hull construction and equipment shall comply with the Pt 2, Ch 1, unless otherwise specified. <u>The material factor is to be in accordance with the Guidance relating to the Rules. But others than the Guidance are to be as following formula:</u> **[See Guidance]** *(2020)*
	$$K = \frac{240}{\sigma_f}$$
	σ_f : yield stress (N/mm^2, proof load with 0.2 % permanent deformation) is not to be taken greater than 70 % of the ultimate tensile strength.
2. Where materials other than those specified in this chapter are used, the use of materials and corresponding scantlings including manufactring process, chemical composition and mechanical properties are to be approved.	2. Where materials other than those specified in this chapter are used, the use of materials and corresponding scantlings including manufactring process, chemical composition and mechanical properties are to be approved.
202. Welding	**202. Welding**
Welding and welding structures are to be in accordance with Pt 2, Ch 2.	Welding and welding structures are to be in accordance with Pt 2, Ch 2.

Present	Amendment
### Section 3 <same as present>	### Section 3 <same as present>
### Section 4 Hull Girder Strength	### Section 4 Hull Girder Strength
401. Application	**401. Application**
The hull girder strength of craft, constructed in aluminium alloy, is to be in accordance with Ch 3, Sec 4. <u>The material factor is to be in accordance with the Guidance relating to the Rules. But others than the Guidance are to be as following formula : 【See Guidance】</u>	The hull girder strength of craft, constructed in aluminium alloy, is to be in accordance with Ch 3, Sec 4. ~~The material factor is to be in accordance with the Guidance relating to the Rules. But others than the Guidance are to be as following formula : 【See Guidance】~~
$$K = \frac{240}{\sigma_f}$$	$$K = \frac{240}{\sigma_f}$$
σ_f : <u>yield stress (N/mm², proof load with 0.2 % permanent deformation) is not to be taken greater than 70 % of the ultimate tensile strength.</u>	~~σ_f : yield stress (N/mm², proof load with 0.2 % permanent deformation) is not to be taken greater than 70 % of the ultimate tensile strength.~~
402. <same as present>	**402. <same as present>**
### Section 5 <same as present>	### Section 5 <same as present>
### Section 6 Stiffeners	### Section 6 Stiffeners
601. Section modulus	**601. Section modulus**
1. The section modulus of stiffeners is not to be less than that obtained from the following formula :	1. The section modulus of stiffeners is not to be less than that obtained from the following formula : *(2020)*
$$Z = \frac{mPSl^2}{\sigma} \quad (\text{cm}^3)$$	$$Z = \frac{mPSl^2}{\sigma} \quad (\text{cm}^3)$$
m : <u>~~bending moment factor, defined in Table 3.4.5 and Table 3.4.8, for load and boundary conditions and for, not defined in previous Tables, m-values are directly from general elastic bending theory.~~</u>	m : <u>bending moment factor, defined in Table 3.4.5 for load and boundary conditions and for, not defined in previous Tables, m-values are directly from Table 3.4.9 and general elastic bending theory.</u>

Present	Amendment
l : span of the stiffeners (m).	l : span of the stiffeners (m).
S : spacing of stiffeners (m).	S : spacing of stiffeners (m).
P : designed pressure, defined in Ch 2.	P : designed pressure, defined in Ch 2.
σ : allowable stress, defined in Table 3.4.1.	σ : allowable stress, defined in Table 3.4.1.
2.~ 5. ⟨same as present⟩	2.~ 5. ⟨same as present⟩
6. The shear area of longitudinals or transverse stiffeners supporting the bottom plating is not to be less than that obtained from the following formula :	6. The shear area of longitudinals or transverse stiffeners supporting the bottom plating is not to be less than that obtained from the following formula : *(2020)*
$$A_S = \frac{8.5 P_{sl}(l-S)S}{\tau_{sl}} \quad (\text{cm}^3)$$	$$A_S = \frac{6.7 P_{sl}(l-S)S}{\tau_{sl}} \quad (\text{cm}^3)$$
τ_{sl} : allowable stress, $90/K_a$	τ_{sl} : allowable stress, $90/K_a$
S : spacing of stiffeners (m).	S : spacing of stiffeners (m).
P_{sl} : as defined in Par 5.	P_{sl} : as defined in Par 5.

Section 7 Transverses and Girders

701. ⟨same as present⟩

702. Minimum thickness

The thickness of structures is normally not to be less than that obtained from the following formula :

$$t = (t_o + kL)\sqrt{K}\frac{S}{S_R} \quad (\text{mm})$$

$$K = \frac{240}{\sigma_f}$$

σ_f : Yield stress in N/mm² at 0.2% offset for unwelded alloy. σ_f is not to be taken greater than 70% of the ultimate tensile strength.

S : actual stiffener spacing (m).

S_R : basic stiffener spacing, as following formula

Section 7 Transverses and Girders

701. ⟨same as present⟩

702. Minimum thickness

The thickness of structures is normally not to be less than that obtained from the following formula :

$$t = (t_o + kL)\sqrt{K}\frac{S}{S_R} \quad (\text{mm})$$

$$\cancel{K = \frac{240}{\sigma_f}}$$

~~σ_f : Yield stress in N/mm² at 0.2% offset for unwelded alloy. σ_f is not to be taken greater than 70% of the ultimate tensile strength.~~

S : actual stiffener spacing (m).

S_R : basic stiffener spacing, as following formula

Present	Amendment
703. ~ 704. 〈same as present〉	703. ~ 704. 〈same as present〉
705. Strength requirements	705. Strength requirements
1. The section modulus of girders subjected to lateral pressure is not to be less than that obtained from the following formula :	1. The section modulus of girders subjected to lateral pressure is not to be less than that obtained from the following formula : *(2020)*
$$Z = \frac{mPl^2b}{\sigma} \quad (\text{cm}^3)$$	$$Z = \frac{mPl^2b}{\sigma} \quad (\text{cm}^3)$$
σ : $160/K$ (N/mm^2). b : breadth of load area (m), defined in Table 3.4.8. m : <u>bending moment factor, defined in Table 3.4.9 and Table 3.4.10, for load and boundary conditions, and for not defined in previous Tables, m-values are directly from general elastic bending theory.</u> l : Girder span	σ : $160/K$ (N/mm^2). b : breadth of load area (m), defined in Table 3.4.8. m : <u>bending moment factor, defined in Table 3.4.10, for load and boundary conditions, and for not defined in previous Tables, m-values are directly from Table 3.4.9 and general elastic bending theory.</u> l : Girder span
2.~ 5. 〈same as present〉	2.~ 5. 〈same as present〉
Section 8 \<same as present\> ⏚	**Section 8 \<same as present\> ⏚**

Present	Amendment	Reason
PART 5 MACHINERY INSTALLATIONS **CHAPTER 2 AUXILIARIES AND PIPING ARRANGEMENT** **Section 5 Fuel Oil System** 503. Fuel oil <u>filters and pumps</u> **1.** The fuel oil pipes of the main engine and essential auxiliary engines are to be provided with filters which can be cleaned without interruption to the fuel oil supply. **2.** Where two or more main engines operating respectively are provided, and where it is possible to give a navigable speed even if one of the engines is out of order the duplex filters may be omitted. **3.** Where two or more main engines operating respectively are provided, and where it is possible to give a navigable speed even if one of the engines attached with their own fuel oil pumps is out of order, the stand-by fuel oil pumps may be omitted. **Section 6 Lubricating Oil System** 601. Lubricating oil filters Where a forced lubricating system (including gravity supply from head tank) is adopted for lubrication of engines, efficient lubrication oil filters are to be provided. The filters used for the lubricating oil systems of the main engine, power transmission of propeller shafting and controllable pitch propeller system are to be capable of being cleaned without stopping the supply of filtered lubricating oil. 602. Lubricating oil pumps Where engines attached with their own fuel oil pumps comply with the following, the stand-by lubricating oil pumps may be omitted. (1) Engines which do not require lubrication before starting, according to their properties (2) Where two or more main engines operating respectively are provided, and where it is possible to give a navigable speed, even if one of the engines is out of order	**PART 5 MACHINERY INSTALLATIONS** **CHAPTER 2 AUXILIARIES AND PIPING ARRANGEMENT** **Section 5 Fuel Oil System** 503. Fuel oil <u>pumps and filters</u> **1.** Fuel oil pumps of internal combustion engines are to be in accordance with the requirements in **Pt 5, Ch 6, 903. 1** of **Rules for the Classification of Steel Ships.** **2.** Fuel oil filters of internal combustion engines are to be in accordance with the requirements in **Pt 5, Ch 6, 903. 2** of **Rules for the Classification of Steel Ships.** **3.** <deleted> **Section 6 Lubricating Oil System** 601. Lubricating oil pumps and filters **1.** Lubricating oil pumps of internal combustion engines are to be in accordance with the requirements in **Pt 5, Ch 6, 802.** of **Rules for the Classification of Steel Ships.** **2.** Where engines which do not require lubrication before starting, the stand-by lubricating oil pumps may be omitted. **3.** Fuel oil filters of internal combustion engines are to be in accordance with the requirements in **Pt 5, Ch 6, 804.** of **Rules for the Classification of Steel Ships.** 602. <deleted>	(amended) –The requirements o f fuel oil pumps, lubricating oil pumps are to be complied with Pt 5 of Rules for the Classification of Steel Ships

Present	Amendment	Reason
Section 7　Cooling Water System **701. Cooling water system** 　**1.** Where main engines and essential auxiliary engines are cooled with water, the cooling system is to be so arranged that the stand-by cooling water pumps can be used even if one of the cooling water pumps is out of use. 　**2.** Where two or more main engines operating respectively are provided, and where it is possible to give a navigable speed even if one of the engines attached with their own cooling water pumps is out of order, the stand-by cooling water pumps may be omitted. 　**3.** In case of engines attached with their own cooling water pumps, the stand-by cooling water pumps may be omitted. 　**4.** The sea inlet lines are to be provided with strainers which can be cleaned without interruption to the sea water supply. In small crafts, however, these strainers may be omitted with approval of the Society.　**[See Guidance]** 　**5.** Sea water cooling systems for main engines and essential auxiliary engines are to be connected to two sea inlets parted respectively as far as practicable.	**Section 7　Cooling Water System** **701. Cooling water pumps** 　**1.** Cooling water pumps are to be in accordance with the requirements in **Pt 5, Ch 6, 701.** and **702.** of **Rules for the Classification of Steel Ships.** 　**2. ~ 5.** <deleted>	(amended) −The requirements o f cooling pumps are to be complied with Pt 5 of Rules for the Classification of Steel Ships

Amended the Rules for the Classification of High Speed and Light Crafts

Rule Development Team

Present	Amendment
# PART 1~2⟨same as present⟩ # PART 3 HULL STRUCTURES ## CHAPTER 1 ⟨same as present⟩ ## CHAPTER 2 DESIGN LOADS ### Section 1 General ⟨same as present⟩ ### Section 2 Accelerations 201. ~ 202. ⟨same as present⟩ 1. ⟨same as present⟩ 2. Transverse acceleration is not to be less than in the formula below. However, when above the axis of roll, the static component $g_o \sin \theta_r$ is to be added. $$a_t = \left(2\frac{\pi}{T_R}\right)^2 \theta_r r_r \quad (\text{m/s}^2)$$ T_R : roll period, taken from following formula. However $V/\sqrt{L}$ need not be taken as greater than 4.0. $$T_R = \frac{\sqrt{L}}{1.05 + 0.175\dfrac{V}{\sqrt{L}}} \quad (s)$$ θ_r = maximum roll inclination, taken from the following formula:	# PART 1~2⟨same as present⟩ # PART 3 HULL STRUCTURES ## CHAPTER 1 ⟨same as present⟩ ## CHAPTER 2 DESIGN LOADS ### Section 1 General ⟨same as present⟩ ### Section 2 Accelerations 201. ~ 202. ⟨same as present⟩ 1. ⟨same as present⟩ 2. Transverse acceleration is not to be less than in the formula below. However, when above the axis of roll, the static component $g_o \sin \theta_r$ is to be added. $$a_t = \left(2\frac{\pi}{T_R}\right)^2 \theta_r r_r \quad (\text{m/s}^2)$$ T_R : roll period, taken from following formula. However $V/\sqrt{L}$ need not be taken as greater than 4.0. $$T_R = \frac{\sqrt{L}}{1.05 + 0.175\dfrac{V}{\sqrt{L}}} \quad (s)$$ θ_r = maximum roll inclination, taken from the following formula:

Present	Amendment
$$\theta_r = \frac{\pi h_W}{2L} \text{ (rad.)}$$	$$\theta_r = \frac{\pi h_W}{2L} \text{ (rad.)}$$

Present	Amendment
h_W : maximum wave height in which 70 % of maximum service speed will be maintained, minimum 0.6 C_W.	h_W : maximum wave height in which 70 % of maximum service speed will be maintained, minimum 0.6 C_W.
r_r : height above axis of roll, however, axis of roll is to be taken as given for :	r_r : height above axis of roll, however, axis of roll is to be taken as given for : *(2020)*
~~twinhull crafts : r_r = waterline~~	<u>- Axis of roll = waterline (twinhull crafts)</u>
~~monohull crafts : r_r = 0.5 D~~	<u>- Axis of roll = 0.5 D (monohull crafts)</u>

CHAPTER 3 STRUCTURE PRINCIPLES IN STEEL

Section 1 ~ 5 <same as present>

Section 6 Stiffeners

601. <same as present>

602. Longitudinals

Present:

1. The section modulus of bottom, side longitudinals, longitudinal beams and longitudinal stiffeners in longitudinal bulkhead is not to be less than that obtained from the following formula :

$$Z_1 = \frac{k(P \text{ or } P_{sl})Sl^2}{\sigma} \quad (\text{cm}^3)$$

However, the following extended formula may be used when necessary.

$$Z_2 = \frac{1000k(P \text{ 또는 } P_{sl})Sl^2}{m\sigma} \quad (\text{cm}^3)$$

Amendment:

CHAPTER 3 STRUCTURE PRINCIPLES IN STEEL

Section 1 ~ 5 <same as present>

Section 6 Stiffeners

601. <same as present>

602. Longitudinals

1. The section modulus of bottom, side longitudinals, longitudinal beams and longitudinal stiffeners in longitudinal bulkhead is not to be less than that obtained from the following formula : *(2020)*

$$Z_1 = \frac{k(P \text{ or } P_{sl})Sl^2}{\sigma} \quad (\text{cm}^3)$$

However, the following extended formula may be used when necessary. *(2020)*

$$Z_2 = \frac{1000(P \text{ or } P_{sl})Sl^2}{m\sigma} \quad (\text{cm}^3)$$

Present	Amendment

Present

l : span of the stiffeners (m), defined in Ch 3, 107.

S : spacing of stiffeners (m).

m : bending moment factor, defined in Table 3.3.12, for load and boundary conditions, not defined in Table 3.3.12 m-values are directly from general elastic bending theory.

K : material factor, defined in Table 3.3.2.

P or P_{sl} : load or impact pressure, defined in Ch 2.

k : 83

σ : allowable stress, defined in Table 3.3.9. Between specified regions the s-value may vary linearly.

2. The bottom longitudinals should preferably be continuous through transverse members. If they are to be cut at transverse members, continuous brackets connecting the ends of the longitudinals are to be fitted.

3. In case of a keel plating, the distance between the center girder and the first longitudinal should not exceed 400 mm.

Table 3.3.9 Allowable Stress of Longitudinals

Locations		σ (N/mm^2)
Within 0.4 L	Deck or bottom	95, $Z_A = Z_R$ (150 for planning slam) 160, $Z_A \geq 2Z_R$
	Within 0.25 D above and below the neutral axis	~~160~~
0.1 L from the perpendiculars		~~160~~
Decks and tops of short superstructures		~~160~~

603. ~612. ⟨same as present⟩

Section 7 ~ 8 <same as present>

Amendment

l : span of the stiffeners (m), defined in Ch 3, 107.

S : spacing of stiffeners (m).

m : bending moment factor, defined in Table 3.3.12, for load and boundary conditions, not defined in Table 3.3.12 m-values are directly from general elastic bending theory.

K : material factor, defined in Table 3.3.2.

P or P_{sl} : load or impact pressure, defined in Ch 2.

k : 83

σ : allowable stress, defined in Table 3.3.9. Between specified regions the s-value may vary linearly.

2. The bottom longitudinals should preferably be continuous through transverse members. If they are to be cut at transverse members, continuous brackets connecting the ends of the longitudinals are to be fitted.

3. In case of a keel plating, the distance between the center girder and the first longitudinal should not exceed 400 mm.

Table 3.3.9 Allowable Stress of Longitudinals *(2020)*

Locations		σ (N/mm^2)
Within 0.4 L	Deck or bottom	95, $Z_A = Z_R$ (150 for planning slam) 160, $Z_A \geq 2Z_R$
	Within 0.25 D above and below the neutral axis	160/K
0.1 L from the perpendiculars		160/K
Decks and tops of short superstructures		160/K

603. ~612. ⟨same as present⟩

Section 7 ~ 8 <same as present>

Present	Amendment
# CHAPTER 4 STRUCTURE PRINCIPLES IN ALUMINIUM ALLOY	# CHAPTER 4 STRUCTURE PRINCIPLES IN ALUMINIUM ALLOY
## Section 1 \<same as present\>	## Section 1 \<same as present\>
## Section 2 Materials and Welding	## Section 2 Materials and Welding
201. Materials	**201. Materials**
1. The materials used for hull construction and equipment shall comply with the Pt 2, Ch 1, unless otherwise specified.	1. The materials used for hull construction and equipment shall comply with the Pt 2, Ch 1, unless otherwise specified. <u>The material factor is to be in accordance with the Guidance relating to the Rules. But others than the Guidance are to be as following formula:</u> **[See Guidance]** *(2020)* $$K = \frac{240}{\sigma_f}$$ <u>σ_f : yield stress (N/mm^2, proof load with 0.2 % permanent deformation) is not to be taken greater than 70 % of the ultimate tensile strength.</u>
2. Where materials other than those specified in this chapter are used, the use of materials and corresponding scantlings including manufactring process, chemical composition and mechanical properties are to be approved.	2. Where materials other than those specified in this chapter are used, the use of materials and corresponding scantlings including manufactring process, chemical composition and mechanical properties are to be approved.
202. Welding Welding and welding structures are to be in accordance with Pt 2, Ch 2.	**202. Welding** Welding and welding structures are to be in accordance with Pt 2, Ch 2.

Present	Amendment
Section 3 <same as present>	**Section 3 <same as present>**
Section 4 Hull Girder Strength	**Section 4 Hull Girder Strength**
401. Application	401. Application
The hull girder strength of craft, constructed in aluminium alloy, is to be in accordance with Ch 3, Sec 4. The material factor is to be in accordance with the Guidance relating to the Rules. But others than the Guidance are to be as following formula： 【See Guidance】	The hull girder strength of craft, constructed in aluminium alloy, is to be in accordance with Ch 3, Sec 4. ~~The material factor is to be in accordance with the Guidance relating to the Rules. But others than the Guidance are to be as following formula： 【See Guidance】~~
$$K = \frac{240}{\sigma_f}$$	$$K = \frac{240}{\sigma_f}$$
σ_f : yield stress (N/mm^2, proof load with 0.2 % permanent deformation) is not to be taken greater than 70 % of the ultimate tensile strength.	~~σ_f : yield stress (N/mm^2, proof load with 0.2 % permanent deformation) is not to be taken greater than 70 % of the ultimate tensile strength.~~
402. <same as present>	402. <same as present>
Section 5 <same as present>	**Section 5 <same as present>**
Section 6 Stiffeners	**Section 6 Stiffeners**
601. Section modulus	601. Section modulus
1. The section modulus of stiffeners is not to be less than that obtained from the following formula :	1. The section modulus of stiffeners is not to be less than that obtained from the following formula : *(2020)*
$$Z = \frac{mPSl^2}{\sigma} \quad (\text{cm}^3)$$	$$Z = \frac{mPSl^2}{\sigma} \quad (\text{cm}^3)$$
m : ~~bending moment factor, defined in Table 3.4.5 and Table 3.4.8, for load and boundary conditions and for, not defined in previous Tables, m-values are directly from general elastic bending theory.~~	m : bending moment factor, defined in Table 3.4.5 for load and boundary conditions and for, not defined in previous Tables, m-values are directly from Table 3.4.9 and general elastic bending theory.

Present	Amendment
l : span of the stiffeners (m). S : spacing of stiffeners (m). P : designed pressure, defined in Ch 2. σ : allowable stress, defined in Table 3.4.1. 2.~ 5. ⟨same as present⟩ 6. The shear area of longitudinals or transverse stiffeners supporting the bottom plating is not to be less than that obtained from the following formula : $$A_S = \frac{8.5 P_{sl}(l-S)S}{\tau_{sl}} \quad (\text{cm}^3)$$ τ_{sl} : allowable stress, $90/K_a$ S : spacing of stiffeners (m). P_{sl} : as defined in Par 5.	l : span of the stiffeners (m). S : spacing of stiffeners (m). P : designed pressure, defined in Ch 2. σ : allowable stress, defined in Table 3.4.1. 2.~ 5. ⟨same as present⟩ 6. The shear area of longitudinals or transverse stiffeners supporting the bottom plating is not to be less than that obtained from the following formula : *(2020)* $$A_S = \frac{6.7 P_{sl}(l-S)S}{\tau_{sl}} \quad (\text{cm}^3)$$ τ_{sl} : allowable stress, $90/K_a$ S : spacing of stiffeners (m). P_{sl} : as defined in Par 5.

Section 7 Transverses and Girders

Present	Amendment

701. ⟨same as present⟩
702. Minimum thickness
The thickness of structures is normally not to be less than that obtained from the following formula :
 	
$$t = (t_o + kL)\sqrt{K}\frac{S}{S_R} \quad (\text{mm})$$
 	
$$K = \frac{240}{\sigma_f}$$
 	
<u>σ_f : Yield stress in N/mm² at 0.2% offset for unwelded alloy.</u>
    <u>σ_f is not to be taken greater than 70% of the ultimate tensile</u>
    <u>strength.</u>
S : actual stiffener spacing (m).
S_R : basic stiffener spacing, as following formula
	701. ⟨same as present⟩
	702. Minimum thickness
	The thickness of structures is normally not to be less than that obtained from the following formula :
	
	$$t = (t_o + kL)\sqrt{K}\frac{S}{S_R} \quad (\text{mm})$$
	
	$$\cancel{K = \frac{240}{\sigma_f}}$$
	
	~~σ_f : Yield stress in N/mm² at 0.2% offset for unwelded alloy.~~
	    ~~σ_f is not to be taken greater than 70% of the ultimate tensile~~
	    ~~strength.~~
	S : actual stiffener spacing (m).
	S_R : basic stiffener spacing, as following formula

Present	Amendment
703. ~ 704. 〈same as present〉	703. ~ 704. 〈same as present〉
705. Strength requirements	705. Strength requirements
1. The section modulus of girders subjected to lateral pressure is not to be less than that obtained from the following formula :	1. The section modulus of girders subjected to lateral pressure is not to be less than that obtained from the following formula : *(2020)*
$$Z = \frac{mPl^2b}{\sigma} \quad (\text{cm}^3)$$	$$Z = \frac{mPl^2b}{\sigma} \quad (\text{cm}^3)$$
σ : $160/K$ (N/mm^2). b : breadth of load area (m), defined in Table 3.4.8. m : <u>bending moment factor, defined in Table 3.4.9 and Table 3.4.10, for load and boundary conditions, and for not defined in previous Tables, m-values are directly from general elastic bending theory.</u> l : Girder span	σ : $160/K$ (N/mm^2). b : breadth of load area (m), defined in Table 3.4.8. m : <u>bending moment factor, defined in Table 3.4.10, for load and boundary conditions, and for not defined in previous Tables, m-values are directly from Table 3.4.9 and general elastic bending theory.</u> l : Girder span
2.~ 5. 〈same as present〉	2.~ 5. 〈same as present〉
Section 8 〈same as present〉 ⏧	**Section 8 〈same as present〉** ⏧

GUIDANCE RELATING TO THE RULES FOR CLASSIFICATION OF HIGH SPEED AND LIGHT CRAFTS

(Development Review : reflected an external opinion)

2020. 02.

- Main Amendments -

(1) Effective date : 1 Jul. 2020 (Date of which are contracted for construction)

⦿ The requirement for bilge pump and cooling system of engine has been amended to comply with the requirement in Pt 5, Ch 6 of the Rules for Classification of Steel Ships.

Present	Amendment	Reason

Present

PART 5 MACHINERY SYSTEM

CHAPTER 2 AUXILIARIES AND PIPING ARRANGEMENT

Section 2 Bilge Pumping System

204. Bilge pumps

1. In application to **204, 1** of the Rules, a ship registered with service restriction notations of equipment ("C" or "S") shall be applied to **Pt 5, Ch 6, Sec 401, 1, (1)** of **Guidance for the Classification of Steel Ships**, and for Passenger Ship, Catamaran of less than 25 m in length one bilge pump may be provided for each hull.

2. <omitted>

Amendment

PART 5 MACHINERY SYSTEM

CHAPTER 2 AUXILIARIES AND PIPING ARRANGEMENT
Section 2 Bilge Pumping System

204. Bilge pumps

1. In application to **204, 1** of the Rules, a ship registered with service restriction notations of equipment ("C" or "S") shall be applied to **Table 5.2.1**. *(2020)*

2. <same as the present>

Table 5.2.1 Number of Bilge Pumps

Length of ship(L)	Power bilge pump		Manual pump	Remarks
	Main engine driven pump	Independent power pump		
$L < 25$ m	1 set	—	1 set	The main engine driven pump may be omitted according to the discretion of the Society. In case ships less than 10 m, a bucket may be provided instead of a pump.(※)
25 m $\leq L < 30$ m	1 set	1 set	—	2 sets of manual pumps may be provided instead of the main engine driven pump. Where ships is difficult to be provided with the independent power pump, the independent power pump may be omitted by considering piping system and capacity of other pumps.(※)
30 m $\leq L < 50$ m	1 set	1 set	—	2 sets of manual pumps may be provided instead of the main engine driven pump.

(Note)
1. The requirement with mark (※) is to be applied to ships other than passenger ship.
2. In this Table, power pump may be provided instead of manual pump, and independent power pump may be provided instead of main engine driven pump.
3. In ships having length 25 m or over, but less than 30 m, the requirement for omission of independent power pump is to be applied to ships difficult to be provided with the independent power pump, provided with main engine driven pump having capacity more than suction capacity required by independent power pump, and arranged bilge piping in all compartment required bilge discharge. Where the hand pump is substituted for main engine driven pump, the independent power pump may be omitted.
4. In ships having coastal service area, the bilge pump for oil filtering equipment may be recognized as a manual bilge pump.
5. All power pumps and manual pumps are to discharge bilge from cargo hold, engine room and shaft tunnel.
6. For ships of less than 25 m in length other than passenger ship, one of the two bilge pumps may be installed manually, even if the capacity of pump is above 1.5 m^3/hr.
7. For catamaran passenger ships, one bilge pump may be provided for each hull.

Reason

(amended)
− The requirement for bilge pump has been amended to comply with the requirement in Table 5.2.1.

Present	Amendment	Reason
<u>**Section 7 Cooling Water System**</u> **701. Cooling water system** **1.** In application to **701, 4** of the Rules, These strainers may be omitted as follows, (1) for a ship of less than 30 m in length (2) for a ship of 30 m and more but less than 50 m in length subject to an internal combustion engine used for moving essential auxiliaries. **2.** In application to **701, 4** of the Rules, as "strainers which can be cleaned without interruption to the sea water supply", following may be accepted as complied system. (1) For multi propeller ships and where single strainer is fitted between the sea water suction valves and the cooling water pump of internal combustion engine which coupled with each shafting system (2) Where two or more the independent driven engines are coupled with one shafting system and single strainer is fitted in the individual engine (3) Where two or more internal combustion engines driving essential auxiliary machinery are installed and single strainer is fitted in the individual engine. ⏚	~~**Section 7 Cooling Water System**~~ ~~**701. Cooling water system**~~ **1.** ~~In application to **701, 4** of the Rules, These strainers may be omitted as follows,~~ ~~(1) for a ship of less than 30 m in length~~ ~~(2) for a ship of 30 m and more but less than 50 m in length subject to an internal combustion engine used for moving essential auxiliaries.~~ **2.** ~~In application to **701, 4** of the Rules, as "strainers which can be cleaned without interruption to the sea water supply", following may be accepted as complied system.~~ ~~(1) For multi propeller ships and where single strainer is fitted between the sea water suction valves and the cooling water pump of internal combustion engine which coupled with each shafting system~~ ~~(2) Where two or more the independent driven engines are coupled with one shafting system and single strainer is fitted in the individual engine~~ ~~(3) Where two or more internal combustion engines driving essential auxiliary machinery are installed and single strainer is fitted in the individual engine. ⏚~~	(amended) - The requirement for cooling system of engine has been amended to comply with the requirement in Pt 5, Ch 6 of the Rules for Classification of Steel Ships.