

Amendments of the Rules / Guidance

(External review)

Pt.7 Ships of Special Services



2020. 09.

Hull Rule Development Team

Pt. 7 Ships of Special Service

Present ⟨Rules⟩	Amendment ⟨Rules⟩	Note
<p>Ch.1 OIL TANKERS</p> <p>Section 2 Hatchways, Gangways and Freeing Arrangements</p> <p>201., 202. ⟨omit⟩</p> <p>203. Hatchways to spaces other than for cargo oil tanks</p> <p style="padding-left: 20px;">In exposed positions on the freeboard and forecastle decks or on the tops of expansion trunks, hatchways serving spaces other than <u>cargo oil tanks</u> are to be provided with steel <u>watertight</u> covers having scantlings complying with the requirements in Pt 4, Ch 2, Sec 2.</p> <p>204., 205. ⟨omit⟩</p> <p style="text-align: right;">↓</p> <p>Ch.10 DOUBLE HULL TANKERS</p> <p>Section 9 Hatchways, Gangways and Freeing Arrangements</p> <p>901., 902. ⟨omit⟩</p> <p>903. Hatchways to spaces other than for cargo oil tanks</p> <p style="padding-left: 20px;">In exposed positions on the freeboard and forecastle decks or on the tops of expansion trunks, hatchways serving spaces other than <u>cargo oil tanks</u> are to be provided with steel <u>watertight</u> covers having scantlings complying with the requirements in Pt 4, Ch 2, Sec 2.</p> <p>904. ⟨omit⟩</p> <p style="text-align: right;">↓</p>	<p>Ch.1 OIL TANKERS</p> <p>Section 2 Hatchways, Gangways and Freeing Arrangements</p> <p>201., 202. ⟨same as current⟩</p> <p>203. Hatchways to spaces other than for cargo oil tanks</p> <p style="padding-left: 20px;">In exposed positions on the freeboard and forecastle decks or on the tops of expansion trunks, hatchways serving spaces other than <u>cargo oil tanks, ballast tank, fuel oil tank and other tanks</u> are to be provided with steel <u>weathertight</u> covers having scantlings complying with the requirements in Pt 4, Ch 2, Sec 3.</p> <p>204., 205. ⟨same as current⟩</p> <p style="text-align: right;">↓</p> <p>Ch.10 DOUBLE HULL TANKERS</p> <p>Section 9 Hatchways, Gangways and Freeing Arrangements</p> <p>901., 902. ⟨same as current⟩</p> <p>903. Hatchways to spaces other than for cargo oil tanks</p> <p style="padding-left: 20px;">In exposed positions on the freeboard and forecastle decks or on the tops of expansion trunks, hatchways serving spaces other than <u>cargo oil tanks, ballast tank, fuel oil tank and other tanks</u> are to be provided with steel <u>weathertight</u> covers having scantlings complying with the requirements in Pt 4, Ch 2, Sec 3.</p> <p>904. ⟨same as current⟩</p> <p style="text-align: right;">↓</p>	

Pt.7 Ships of Special Service

Present	Amendment	Note
<p style="text-align: center;">CHAPTER 4 CONTAINER SHIPS</p> <p style="text-align: center;">101. Application [See Guidance]</p> <p style="text-align: center;">1. ~ 5. (omission)</p> <p style="text-align: right;"><Newly added></p>	<p style="text-align: center;">CHAPTER 4 CONTAINER SHIPS</p> <p style="text-align: center;">101. Application [See Guidance]</p> <p style="text-align: center;">1. ~ 5. (omission)</p> <p style="text-align: center;">6. For container ships contracted for construction on or after July 1, 2018, the requirements in Pt 14 Structural Rules for Container Ships are applied. (2021)</p>	

Present	Amendment	Note
<p style="text-align: center;">〈Guidance〉</p> <p style="text-align: center;">CHAPTER 10 DOUBLE HULL TANKERS</p> <p style="text-align: center;">Section 4 Girders</p> <p>401. General [See Rule]</p> <p>1. Notwithstanding the requirement in 401. 2 the scantlings of girders may be determined for tankers with <i>L</i> less than 200 m. in accordance with the requirements in 403. through 407. In this case, the arrangement of primary members in the double bottom, double side hull and cargo oil tank at cargo tank area are to be determined referring to the structural types shown in following (1) through (3) as the standard. However, in tankers without partial loading conditions such as half-loading or alternate loading, the spacing of girders and floors in double bottom and stringers and transverses in double side hull may be increased.</p> <p>(1) ~ (3) 〈omit〉</p>	<p style="text-align: center;">〈Guidance〉</p> <p style="text-align: center;">CHAPTER 10 DOUBLE HULL TANKERS</p> <p style="text-align: center;">Section 4 Girders</p> <p>401. General [See Rule]</p> <p>1. In application of 401. 2 of the Rules, "when approved by the Society" means any of the following (1) to (3) among ships of 200 m or less.</p> <p>(1) ~ (3) 〈omit〉</p>	

Present	Amendment	Note
<p style="text-align: center;">Annex 7-3 Guidance for Car Ferries</p> <p>6. Vehicle area</p> <p>(1) Construction <omit></p> <p>(2) Doors provided in closed vehicle area</p> <p> (A)</p> <p> (B) The height of doorsill for <u>access hatch and coaming of opening</u> which may be access through the under of freeboard deck from vehicle area is to be not less than 230 mm and <u>access hatch and coaming of opening</u> which may be access through machinery room is to be not less than 380 mm.</p> <p> (C)</p> <p>(3) Doors provided in exposed vehicle area The heights of doorsill for <u>access hatch and coaming of opening</u> which may be access through the under of freeboard deck from vehicle area and <u>access hatch and coaming of opening</u> which may be access through machinery room are to comply with Guidance Pt 3, Ch 1, Table 3.1.2. ~ <omit></p>	<p style="text-align: center;">Annex 7-3 Guidance for Car Ferries</p> <p>6. Vehicle area</p> <p>(1) Construction <same as current></p> <p>(2) Doors provided in closed vehicle area</p> <p> (A)</p> <p> (B) The height of doorsill for <u>access door and coaming of access hatch</u> which may be access through the under of freeboard deck from vehicle area is to be not less than 230 mm and <u>access door and coaming of access hatch</u> which may be access through machinery room is to be not less than 380 mm.</p> <p> (C)</p> <p>(3) Doors provided in exposed vehicle area The heights of doorsill for <u>access door and coaming of access hatch</u> which may be access through the under of freeboard deck from vehicle area and <u>access door and coaming of access hatch</u> which may be access through machinery room are to comply with Guidance Pt 3, Ch 1, Table 3.1.2. ~ <same as current></p>	

Pt. 7 Ships of Special Service

Present ⟨Rules⟩	Amendment ⟨Rules⟩	Note
<p style="text-align: center;">CHAPTER 1 OIL TANKERS</p> <p style="text-align: center;">Section 10 Piping Systems and Venting Systems for Oil Tankers</p> <p>1001. General [See Guidance]</p> <p>1., 2. ⟨omit⟩</p> <p>3. Special type</p> <p>Where ships are equipped with new types of pumps and/or piping systems, specifications and detailed drawings are to be submitted to the Society for approval. The Society may require additional detailed investigations or tests of their own, where deemed necessary by the Society.</p>	<p style="text-align: center;">CHAPTER 1 OIL TANKERS</p> <p style="text-align: center;">Section 10 Piping Systems and Venting Systems for Oil Tankers</p> <p>1001. General [See Guidance]</p> <p>1. ,2. ⟨same as current⟩</p> <p>3. ⟨same as current⟩</p> <p>4. In application of the 1001. 3, "Requirements concerning use of crude oil or slops as fuel for tanker boilers" are to comply with Annex 7-1 "Additional Requirements for Oil Tankers Using Crude Oil as a Fuel for Boilers". (2021)</p>	<p>- move from the G uidelines to the Rule</p>
<p style="text-align: center;">CHAPTER 1 OIL TANKERS</p> <p style="text-align: center;">Section 10 Piping Systems and Venting Systems for Oil Tankers</p> <p>1001. General [See Rule]</p> <p>1. In case where double bottom used as other than cargo oil tank is provided below cargo oil tank, the requirements specified in Sec 10 of the Rules and additionally the requirements specified in the following are to be complied with ;</p> <p>(1) ~ (3) ⟨omit⟩</p> <p>2. In application of the 1001. 3, "Requirements concerning use of crude oil or slops as fuel for tanker boilers" are to comply with Annex 7-1.</p>	<p style="text-align: center;">CHAPTER 1 OIL TANKERS</p> <p style="text-align: center;">Section 10 Piping Systems and Venting Systems for Oil Tankers</p> <p>1001. General [See Rule]</p> <p>1. In case where double bottom used as other than cargo oil tank is provided below cargo oil tank, the requirements specified in Sec 10 of the Rules and additionally the requirements specified in the following are to be complied with ;</p> <p>(1) ~ (3) ⟨omit⟩</p> <p>⟨delete⟩</p>	<p>- move from the G uidelines to the Rule</p>

Present	Amendment	Note
<p style="text-align: center;">Present <Rules></p> <p style="text-align: center;">CHAPTER 3 BULK CARRIERS Section 1 General</p> <p>101. Application [See Guidance]</p> <p>1. ~ 5. <omit></p> <p>6. Bulk carriers, which were contracted for construction before 1 July 1998, and the keels of which were laid or which were at a similar stage of construction before 1 July 1999, are to be determined at the discretion of the Society.</p>	<p style="text-align: center;">Amendment <Rules></p> <p style="text-align: center;">CHAPTER 3 BULK CARRIERS Section 1 General</p> <p>101. Application [See Guidance]</p> <p>1. ~ 5. <same as current></p> <p>6. <same as current></p> <p>7. <u>All bulk carriers of 150 m in length and above, intending to carry solid bulk cargoes having a density of 1.78 t/m³, or above, with single deck, topside tanks and hopper tanks, which have the foremost hold stipulated in the following (1) or (2) and have not been constructed in compliance with Sec 11 and Sec 12 of the Rules are to be complied with Annex 7-5 「Additional Requirements for Existing Bulk Carriers, (2021)</u></p> <p>(1) the foremost hold is bounded by the side shell only for ships which were contracted for construction prior to 1 July 1998.</p> <p>(2) the foremost hold is double side skin construction of less than 760 mm breadth measured perpendicular to the side shell in ships, the keels of which were laid, or which were at a similar stage of construction, before 1 July 1999.</p>	<p>- move from the Guidelines to the Rule</p>
<p style="text-align: center;"><Guidance></p> <p style="text-align: center;">CHAPTER 3 BULK CARRIERS Section 1 General</p> <p>101. Application [See Rule]</p> <p>1. <omit></p> <p>2. <u>All bulk carriers of 150 m in length and above, intending to carry solid bulk cargoes having a density of 1.78 t/m³, or above, with single deck, topside tanks and hopper tanks, which have the foremost hold stipulated in the following (1) or (2) and have not been constructed in compliance with Sec 11 and Sec 12 of the Rules are to be complied with Annex 7-5.</u></p> <p>(1), (2) <omit></p>	<p style="text-align: center;"><Guidance></p> <p style="text-align: center;">CHAPTER 3 BULK CARRIERS Section 1 General</p> <p>101. Application [See Rule]</p> <p>1. <same as current></p> <p><delete></p>	<p>- move from the Guidelines to the Rule</p>

Present	Amendment	Note
<p style="text-align: center;">Present 〈Rules〉</p> <p style="text-align: center;">Section 2 Harmonised Notations and Corresponding Design Loading Conditions</p> <p>201. General</p> <p>1. ~ 4. 〈omit〉</p> <p>5. Design loading conditions (for local strength)</p> <p>(1) Definitions</p> <p>The maximum allowable or minimum required cargo mass in a cargo hold, or in two adjacently loaded holds, is related to the net load on the double bottom. The net load on the double bottom is a function of draft, cargo mass in the cargo hold, as well as the mass of fuel oil and ballast water contained in double bottom tanks.</p> <p>The following definitions apply:</p> <p>M_H : the actual cargo mass in a cargo hold corresponding to a homogeneously loaded condition at maximum draught.</p> <p>M_{Full} : the cargo mass in a cargo hold corresponding to cargo with virtual density (homogeneous mass/hold cubic capacity, minimum 1.0 t/m³) filled to the top of the hatch coaming. M_{Full} is in no case to be less than M_H.</p> <p>M_{HD} : the maximum cargo mass allowed to be carried in a cargo hold according to design loading condition(s) with specified holds empty at maximum draft.</p> <p>(2) ~ (7) 〈omit〉</p>	<p style="text-align: center;">Amendment 〈Rules〉</p> <p style="text-align: center;">Section 2 Harmonised Notations and Corresponding Design Loading Conditions</p> <p>201. General</p> <p>1. ~ 4. 〈omit〉</p> <p>5. Design loading conditions (for local strength)</p> <p>(1) Definitions</p> <p>The maximum allowable or minimum required cargo mass in a cargo hold, or in two adjacently loaded holds, is related to the net load on the double bottom. The net load on the double bottom is a function of draft, cargo mass in the cargo hold, as well as the mass of fuel oil and ballast water contained in double bottom tanks. (Refer to Annex 7-4 「Guidance for Calculating the Maximum Allowable and Minimum Required Mass of Cargo and Double Bottom Contents with Bulk Carriers.」 (2021))</p> <p>〈same as current〉</p> <p>(2) ~ (7) 〈same as current〉</p>	<p>〈newly added〉</p>

Present	Amendment	Note
<p style="text-align: center;">〈Rules〉</p> <p style="text-align: center;">Section 14 Water Level Detection & Alarms and Drainage & Pumping Systems for Bulk Carriers and Single Hold Cargo Ships</p> <p>1401. General [See Guidance]</p> <p>Arrangements, testing and etc. for water level detectors, alarms and drainage, pumping systems required by 1403. and 1404. are to be followed in accordance with the requirements <u>specified by the Society.</u></p>	<p style="text-align: center;">〈Rules〉</p> <p style="text-align: center;">Section 14 Water Level Detection & Alarms and Drainage & Pumping Systems for Bulk Carriers and Single Hold Cargo Ships</p> <p>1401. General [See Guidance]</p> <p>Arrangements, testing and etc. for water level detectors, alarms and drainage, pumping systems required by 1403. and 1404. are to be followed in accordance with the requirements of the Annex 7-6 <u>「Water Level Detection & Alarms and Drainage & Pumping Systems for Bulk Carriers and Single Hold Cargo Ships」. (2021)</u></p>	<p>- move from the Guidelines to the Rule</p>
<p style="text-align: center;">〈Guidance〉</p> <p style="text-align: center;">Section 14 Water Level Detection & Alarm and Drainage & Pumping Systems for Bulk Carriers and Single Hold Cargo Ships</p> <p>1401. General [See Rule]</p> <p><u>Arrangement and testing etc. for water level detectors, alarms and drainage and pumping systems required by the 1403. and 1404. of the Rule are to be in accordance with the requirements of the Annex 7-6.</u></p>	<p style="text-align: center;">〈Guidance〉</p> <p style="text-align: center;">Section 14 Water Level Detection & Alarm and Drainage & Pumping Systems for Bulk Carriers and Single Hold Cargo Ships</p> <p>〈delete〉</p>	<p>- move from the Guidelines to the Rule</p>

Present	Amendment	Note
<p style="text-align: center;">Present <Rules></p> <p style="text-align: center;">CHAPTER 4 CONTAINER SHIPS Section 1 General</p> <p>101. Application [See Guidance] 1. ~ 5. <omit></p> <p>102. Direct Strength Calculation 1. ~ 4. <omit></p>	<p style="text-align: center;">Amendment <Rules></p> <p style="text-align: center;">CHAPTER 4 CONTAINER SHIPS Section 1 General</p> <p>101., 102. <same as current></p> <p><u>103. Application of extremely thick steel plates with high yield strength (2021)</u></p> <p>1. Where extremely thick plates with high yield strength are used for hull construction, the application is to be in accordance with the <u>Annex 7-8 「Instruction for Use of Extremely Thick Steel Plates」.</u></p>	<p style="text-align: center;">Note</p> <p>- move from the Guidelines to the Rule</p>
<p style="text-align: center;"><Guidance></p> <p style="text-align: center;">CHAPTER 4 CONTAINER SHIPS Section 1 General</p> <p>101. <omit></p> <p><u>103. Application of extremely thick steel plates with high yield strength</u></p> <p>1. Where extremely thick plates with high yield strength are used for hull construction, the application is to be in accordance with the <u>Annex 7-8 Instruction for Use of Extremely Thick Steel Plates.</u></p>	<p style="text-align: center;"><Guidance></p> <p style="text-align: center;">CHAPTER 4 CONTAINER SHIPS Section 1 General</p> <p>101. <omit></p> <p><delete></p>	<p>- move from the Guidelines to the Rule</p>

Present	Amendment	Note
<p style="text-align: center;">Present 〈Rules〉</p> <p style="text-align: center;">Section 10 Freight Container Securing Arrangements</p> <p>1001. 〈omit〉</p> <p>1002. Freight container securing systems [See Guidance]</p> <ol style="list-style-type: none"> 1. For freight container securing systems plans showing materials, arrangement and scantling, etc. may be submitted for approval of the Society. Where container securing fittings are applied for part container only, this requirements may be suitably applied. 2. Securing devices specified in Par 1 are to be approved in accordance with <u>the special requirements given by the Society</u> prior to installation on board the ship. 3. Container supporting structures are to be of rolled steel for hull structural specified in Pt 2, Ch 1, 301. However, other materials may be used if approved by the Society. <i>(2020)</i> 	<p style="text-align: center;">Amendment 〈Rules〉</p> <p style="text-align: center;">Section 10 Freight Container Securing Arrangements</p> <p>1001. 〈omit〉</p> <p>1002. Freight container securing systems [See Guidance]</p> <ol style="list-style-type: none"> 1. For freight container securing systems plans showing materials, arrangement and scantling, etc. may be submitted for approval of the Society. Where container securing fittings are applied for part container only, this requirements may be suitably applied. 2. Securing devices specified in Par 1 are to be approved in accordance with Annex 7-2 「Guidance for the Container Securing Arrangements, prior to installation on board the ship. <i>(2021)</i> 3. Container supporting structures are to be of rolled steel for hull structural specified in Pt 2, Ch 1, 301. However, other materials may be used if approved by the Society. <i>(2020)</i> 4. <u>In order to assigned the additional special feature “CSAP” (Cargo Safety Approach), the provisions of Annex 7-11 「Guidelines for Providing Safe Working Conditions for Retaining Containers on Deck, should be satisfied. <i>(2021)</i></u> 	<p>〈newly added〉</p> <p>〈newly added〉</p>

Present	Amendment	Note
<p style="text-align: center;">Present 〈Rules〉</p> <p style="text-align: center;">CHAPTER 7 CAR FERRIES AND ROLL-ON/ROLL-OFF SHIPS</p> <p style="text-align: center;">Section 1 General</p> <p>101. Application</p> <ol style="list-style-type: none"> 1. This Chapter applies to seagoing roll-on/roll-off cargo ships specially designed and constructed for the carriage of vehicles, and cargo in pallet form or in containers, and loaded and unloaded by wheeled vehicles. 2. The hull structures and equipments of ships that are intended for restricted service and carriage of vehicles through the bow door, inner door, side door or ramp formed the hull structures (hereinafter referred to as vehicle doors) is to in accordance with <u>the discretion of the Society</u>. 〔See Guidance〕 3. The scantlings and arrangements are to be as required by Pt 3 except as otherwise specified in this Chapter. 	<p style="text-align: center;">Amendment 〈Rules〉</p> <p style="text-align: center;">CHAPTER 7 CAR FERRIES AND ROLL-ON/ROLL-OFF SHIPS</p> <p style="text-align: center;">Section 1 General</p> <p>101. Application</p> <ol style="list-style-type: none"> 1. 〈same as current〉 2. The hull structures and equipments of ships that are intended for restricted service and carriage of vehicles through the bow door, inner door, side door or ramp formed the hull structures (hereinafter referred to as vehicle doors) is to in accordance with <u>the requirement in Annex 7-3 「Guidance for Car Ferries」. (2021)</u> 3. 〈same as current〉 	<p>- move from the Guidelines to the Rule</p>
<p style="text-align: center;">〈Guidance〉</p> <p style="text-align: center;">CHAPTER 7 CAR FERRIES AND ROLL-ON/ROLL-OFF SHIPS</p> <p style="text-align: center;">Section 1 General</p> <p>101. Application</p> <p><u>The ship specified in 101. 2 of the Rules are to comply with the requirement Annex 7-3 Guidance for Car Ferries. 〔See Rule〕</u></p>	<p style="text-align: center;">〈Guidance〉</p> <p style="text-align: center;">CHAPTER 7 CAR FERRIES AND ROLL-ON/ROLL-OFF SHIPS</p> <p style="text-align: center;">Section 1 General</p> <p style="text-align: center;">〈delete〉</p>	<p>- move from the Guidelines to the Rule</p>

RULES FOR CLASSIFICATION(STEEL SHIPS)

(Development Review : For external opinion inquiry)

Part 7 SHIPS OF SPECIAL SERVICE

2020. 9.

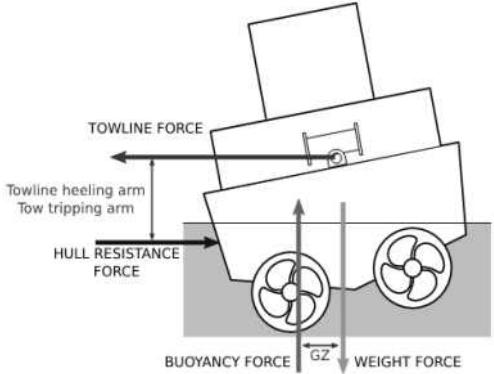


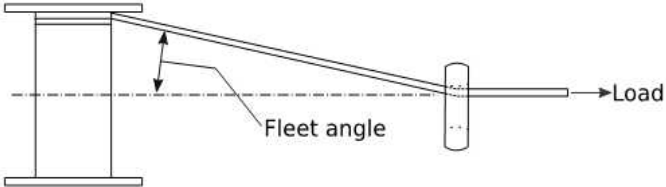
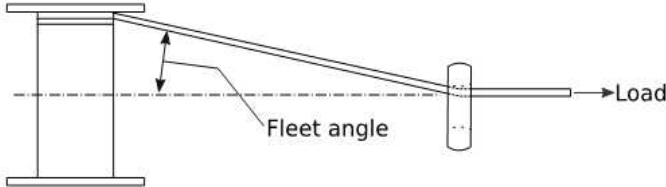
Machinery Rule Development Team

- Main Amendments -

(1) Effective date : 1 July 2021 (Date of which contracts for construction are signed)

- Guidance Ch.9 Sec.8 has been moved to the Rules.
- IACS UR M79 Rev.1 has been reflected.

Present Guidance	Amendment	Note
<p style="text-align: center;">CHAPTER 9 TUGS</p> <p style="text-align: center;">Section 1 ~ Section 7 <omitted></p> <p style="text-align: center;">Section 8 Towing Winch Emergency Release Systems (2020)</p> <p>801. General</p> <p>1. Scope</p> <p>(1) This Section defines minimum safety standards for winch emergency release systems provided on towing winches that are used on towing ships within close quarters, ports or terminals.</p> <p>(2) This Section is not intended to cover towing winches on board ships used solely for long distance ocean towage, anchor handling or similar offshore activities.</p> <p>2. <newly added></p>	<p style="text-align: center;">CHAPTER 9 TUGS</p> <p style="text-align: center;">Section 1 ~ Section 7 <same as the present></p> <p style="text-align: center;">Section 8 Towing Winch Emergency Release Systems (2021)</p> <p>801. General</p> <p>1. Scope</p> <p>(1) This Section defines minimum safety standards for winch emergency release systems provided on towing winches that are used on towing ships within close quarters, ports or terminals, <u>including those ships normally not intended for towing operation in transverse direction.</u></p> <p>(2) <same as the present></p> <p>2. Purpose</p> <p><u>The purpose of this section is to provide requirements to prevent the capsize of a tug when in the act of towage as a result of the towline force acting transversely to the tug (in beam direction) as a consequence of an unexpected event (could be loss of propulsion/steering or otherwise), whereby the resulting couple generated by offset and opposing transverse forces (towline force is opposed by thrust or hull resistance force) causes the tug to heel and, ultimately, to capsize. This capsize may be referred to as "girting", "girthing", "girding" or "tripping". See Figure 1 which shows the forces acting during towage operations.</u></p> <div style="text-align: center;">  </div> <p style="text-align: center;">- 15 -</p> <p style="text-align: center;">Fig 1 Force during towing</p>	<p>(amendment)</p> <p>– Guidance Ch.9 Sec.8 has been moved and reflected IACS UR M79 Rev.1</p>

Present	Amendment	Note
<p>2. Definitions</p> <p>(1) Emergency release system refers to the mechanism and associated control arrangements that are used to release the load on the towline in a controlled manner under both normal and <u>dead-ship</u> conditions.</p> <p>(2) Maximum design load is the maximum load that can be held by the winch as defined by the manufacturer (the manufacturer's rating).</p> <p>(3) <u>Girthing means the capsize of a tug when in the act of towage as a result of the towline force acting transversely to the tug (in beam direction) as a consequence of an unexpected event (could be loss of propulsion/steering or otherwise), whereby the resulting couple generated by offset and opposing transverse forces (towline force is opposed by thrust or hull resistance force) causes the tug to heel and, ultimately, to capsize. This may also be referred to as 'girthing, 'girding' or 'tripping'. See Fig 1 which shows the forces acting during towage operations.</u></p> <p>(4) Fleet angle is the angle between the applied load (towline force) and the towline as it is wound onto the winch drum, see Fig 2.</p>  <p style="text-align: center;">Figure 2 Towline 'fleet angle'</p> <p>802. General requirements</p> <ol style="list-style-type: none"> 1. The in-board end of the towline is to be attached to the winch drum with a weak link or similar arrangement that is designed to release the towline at low load. 2. All towing winches are to be fitted with an emergency release system. 	<p>2. Definitions</p> <p>(1) Emergency release system refers to the mechanism and associated control arrangements that are used to release the load on the towline in a controlled manner under both normal and <u>black out</u> conditions.</p> <p>(2) ⟨same as the present⟩</p> <p>(3) Girthing means the capsize of a tug when in the act of towage as a result of the towline force acting transversely to the tug (in beam direction) as a consequence of an unexpected event (could be loss of propulsion/steering or otherwise), whereby the resulting couple generated by offset and opposing transverse forces (towline force is opposed by thrust or hull resistance force) causes the tug to heel and, ultimately, to capsize. This may also be referred to as 'girthing, 'girding' or 'tripping'. See Fig 1 which shows the forces acting during towage operations.</p> <p>(4) ⟨same as the present⟩</p>  <p style="text-align: center;">Figure 2 Towline 'fleet angle'</p> <p>802. General requirements</p> <ol style="list-style-type: none"> 1. ⟨same as the present⟩ 2. ⟨same as the present⟩ 	<p>(amendment)</p> <p>– Guidance Ch.9 Sec.8 has been moved and reflected IACS UR M79 Rev.1</p>

Present	Amendment	Note
<p>803. Emergency release system requirements</p> <p>1. Performance requirements</p> <p>(1) The emergency release system is to operate across the full range of towline load, fleet angle and ship heel angle under all normal and reasonably foreseeable abnormal conditions (these may include, but are not limited to, the following: vessel electrical failure, variable towline load (for example due to heavy weather), etc.).</p> <p>(2) The emergency release system shall be capable of operating with towline loads up to at least 100 % of the maximum design load.</p> <p>(3) The emergency release system is to function as quickly as is reasonably practicable and within a maximum of three seconds after activation.</p> <p>(4) The emergency release system is to allow the winch drum to rotate and the towline to pay out in a controlled manner such that, when the emergency release system is activated, there is sufficient resistance to rotation to avoid uncontrolled unwinding of the towline from the drum. Spinning (free, uncontrolled rotation) of the winch drum is to be avoided, as this could cause the towline to get stuck and disable the release function of the winch. towline to get stuck and disable the release function of the winch.</p> <p>(5) Once the emergency release is activated, the towline load required to rotate the winch drum is to be no greater than:</p> <p>(A) the lesser of 5 tonnes or 5 % of the maximum design load when two layers of towline are on the drum, or</p> <p>(B) 15 % of the maximum design load where it is demonstrated that this resistance to rotation does not exceed 25 % of the force that will result in listing sufficient for the immersion of the lowest unprotected opening.</p> <p>(6) <u>An alternative source of energy is to be provided such that normal operation of the emergency release system can be sustained under dead-ship conditions.</u></p>	<p>803. Emergency release system requirements</p> <p>1. Performance requirements</p> <p>(1) ~ (5) <same as the present></p> <p>(6) <u>Emergency release of the towline is to be possible in the event of a blackout. For this purpose, where additional sources of energy are required, such sources are to comply with (7).</u></p>	<p>(amendment)</p> <p>– Guidance Ch.9 Sec.8 has been moved and reflected IACS UR M79 Rev.1</p>

Present	Amendment	Note
<p>(7) <u>The alternative source</u> of energy required by (6) <u>is</u> to be sufficient to achieve the most onerous of the following conditions (as applicable):</p> <p>(A) sufficient for at least three attempts to release the towline (i.e. three activations of the emergency release system). Where the system provides energy for more than one winch it is to be sufficient for three activations of the most demanding winch connected to it.</p> <p>(B) Where the winch design is such that the drum release mechanism requires continuous application of power (e.g. where the brake is applied by spring tension and released using hydraulic or pneumatic power) sufficient power is to be provided to operate the emergency release system (e.g. hold the brake open and allow release of the towline) in a <u>dead-ship situation</u> for a minimum of five minutes. This may be reduced to the time required for the full length of the towline to feed off the winch drum at the load specified in (5) if this is less than five minutes.</p> <p>2. Operational requirements</p> <p>(1) Emergency release operation must be possible from the bridge and from the winch control station on deck. The winch control station on deck is to be in a safe location.</p> <p>(2) The emergency release control is to be located <u>in close proximity to the</u> emergency stop button for winch operation and <u>both should</u> be clearly identifiable, clearly visible, easily accessible and positioned to allow safe operability.</p> <p>(3) The emergency release function is to take priority over any emergency stop function. Activation of the winch emergency stop from any location is not to inhibit operation of the emergency release system from any location.</p> <p>(4) Emergency release system control buttons are to require positive action to cancel, the positive action may be made at a different control position from the one where the emergency release was activated. It must always be possible to cancel the emergency release from the bridge regardless of the activation location and without manual intervention on the working deck.</p>	<p>(7) <u>The sources</u> of energy required by (6) <u>are</u> to be sufficient to achieve the most onerous of the following conditions (as applicable):</p> <p>(A) <same as the present></p> <p>(B) Where the winch design is such that the drum release mechanism requires continuous application of power (e.g. where the brake is applied by spring tension and released using hydraulic or pneumatic power) sufficient power is to be provided to operate the emergency release system (e.g. hold the brake open and allow release of the towline) in <u>the event of a blackout</u> for a minimum of five minutes. This may be reduced to the time required for the full length of the towline to feed off the winch drum at the load specified in (5) if this is less than five minutes.</p> <p>2. Operational requirements</p> <p>(1) Emergency release operation must be possible from the bridge and from the winch control station on deck. The winch control station on deck is to be in a safe location. <u>A position in close proximity to the winch is not regarded as “safe location”, unless it is documented that the position is at least protected against towline break or winch failure.</u></p> <p>(2) The emergency release control is to be located <u>close to an</u> emergency stop button for winch operation, <u>if provided</u>, and <u>shall</u> be clearly identifiable, clearly visible, easily accessible and positioned to allow safe operability.</p> <p>(3) <same as the present></p> <p>(4) <same as the present></p>	<p>(amendment)</p> <p>– Guidance Ch.9 Sec.8 has been moved and reflected IACS UR M79 Rev.1</p>

Present	Amendment	Note
<p>(5) Controls for emergency use are to be protected against accidental use.</p> <p>(6) Indications are to be provided on the bridge for all power supply and/or pressure levels related to the normal operation of the emergency release system. Alarms are to activate automatically if any level falls outside of the limits within which the emergency release system is fully operational.</p> <p>(7) Wherever practicable, control of the emergency release system is to be provided by a hard-wired system, fully independent of programmable electronic systems.</p> <p>(8) Computer based systems that operate or may affect the control of emergency release systems are to meet the requirements for Category III systems of KR Rules Pt 6, Sec 4.</p> <p>(9) Components critical for the safe operation of the emergency release system are to be identified by the manufacturer.</p> <p>(10) <u>The method for annual survey of the winch is to be documented.</u></p> <p>(11) <u>Where necessary for conducting the annual survey of the winch, adequately sized strong points are to be provided on deck.</u></p> <p>804. Test requirements</p> <p>1. General</p> <p>(1) All testing defined within this paragraph is to be witnessed by a Classification Society surveyor.</p> <p>(2) For each emergency release system or type thereof, the performance requirements of 803. 1 are to be verified either at the manufacturer's works or as part of the commissioning of the towing winch when it is installed on board. Where verification solely through testing is impracticable (e.g. due to health and safety), testing may be combined with inspection, analysis or demonstration in agreement with the Society.</p> <p>(3) The performance capabilities <u>and operating instructions</u> of the emergency release system are to be documented and made available on board the ship on which the winch has been installed.</p> <p>(4) ~ (5) <newly added></p>	<p>(5) ~ (9) <same as the present></p> <p>(10) The method for annual survey of the winch is to be documented.</p> <p>(11) Where necessary for conducting the annual survey of the winch, adequately sized strong points are to be provided on deck.</p> <p>804. Test requirements</p> <p>1. General</p> <p>(1) <same as the present></p> <p>(2) <same as the present></p> <p>(3) <u>The performance capabilities, as well as instructions for operation, of the emergency release system are to be documented by the manufacturer and made available on board the ship on which the winch has been installed.</u></p> <p>(4) <u>Instructions for surveys of the emergency release system are to be documented by the manufacturer, agreed by the Society and made available on board the ship on which the winch has been installed.</u></p> <p>(5) <u>Where necessary for conducting the annual and special surveys of the winch, adequately sized strong points are to be provided on deck.</u></p>	<p>(amendment)</p> <p>– Guidance Ch.9 Sec.8 has been moved and reflected IACS UR M79 Rev.1</p>

Present	Amendment	Note
<p>2. Installation trials</p> <p>(1) The full functionality of the emergency release system is to be tested as part of the shipboard commissioning trials to the satisfaction of the surveyor. Testing may be conducted either during a bollard pull test or by applying the towline load against a strong point on the deck of the tug that is certified to the appropriate load.</p> <p>(2) Where the performance of the winch in accordance with 803. 1 has previously been verified, the load applied for the installation trials is to be at least the lesser of 30 % of the maximum design load or 80 % of vessel bollard pull. ↓</p>	<p>2. Installation trials</p> <p>(1) ~ (2) <same as the present></p>	<p>(amendment)</p> <p>– Guidance Ch.9 Sec.8 has been moved and reflected IACS UR M79 Rev.1</p>

Amendments of the Rules / Guidance

Pt. 7 Ships of Special Service-1 / -2



2020. 11

Hull Rule Development Team

개정의 배경 및 내용

1. 개정배경: 오류 수정

(1) 개정요청서(HUT4000-2683-2020)

: 규칙 3편 15장 207 파형격벽 관련 산식 영문 오류 수정

(2) 개정요청서(HUC4100-2335-2020)

: 적용지침 3편 1장 표3.1.1 영문 오류 수정

(3) 개정요청서(HUT4000-2688-2020)

: 적용지침 3편 2장 211 샤프트 스트럿 요건 추가

(4) 개정요청서(HUT4000-2677-2020)

: 적용지침 3편 7장 801. 2 슬래밍 압력 산식 오류 수정

(5) 개정요청서(TST4700-673-2020)

: 적용지침 7편 4장 1002. 3 (4) 컨테이너고박설비 제품검사 관련 (안전사용하중)

(6) 개정요청서(HUT4000-2680-2020)

: 적용지침 7편 7장 표7.7.1 영문 오류 수정

2. 개정내용: 신규대비표 참조

Pt. 7 Ships of Special Service-1

Present	Amendment	Note
<p style="text-align: center;">〈Guidance〉</p> <p style="text-align: center;">CHAPTER 4 CONTAINER SHIPS Section 10 Freight Container Securing Arrangement</p> <p>1002. Freight container securing systems [See Rule]</p> <p>1. , 2 <omit></p> <p>3. Inspection procedure of Freight container securing arrangement (1) ~ (3) <omit></p> <p>(4) For production tests carried out in accordance with (2)(A) permanent deformation(other than that due to initial embedding of component parts) will not be accepted within the range of loading up to :</p> <p>(A) where SWL is less than 25 <i>tones</i> : $1.5 \times SWL$ (<i>ton</i>) (B) where SWL is 25 <i>tones</i> or greater : $SWL \times 12.5$ (<i>ton</i>) Consideration may be given to acceptance of permanent deformation in the load range between that given in (2) and the proof load provided that satisfactory manual operation can be achieved after completion of tests.</p> <p>(5), (6) <omit></p> <p style="text-align: right;">↓</p>	<p style="text-align: center;">〈Guidance〉</p> <p style="text-align: center;">CHAPTER 4 CONTAINER SHIPS Section 10 Freight Container Securing Arrangement</p> <p>1002. Freight container securing systems [See Rule]</p> <p>1. , 2 <same as current></p> <p>3. Inspection procedure of Freight container securing arrangement (1) ~ (3) <same as current></p> <p>(4) For production tests carried out in accordance with (2)(A) permanent deformation(other than that due to initial embedding of component parts) will not be accepted within the range of loading up to :</p> <p>(A) where SWL is less than 25 <i>tones</i> : $1.5 \times SWL$ (<i>ton</i>) (B) where SWL is 25 <i>tones</i> or greater : $SWL + 12.5$ (<i>ton</i>) Consideration may be given to acceptance of permanent deformation in the load range between that given in (2) and the proof load provided that satisfactory manual operation can be achieved after completion of tests.</p> <p>(5), (6) <same as current></p> <p style="text-align: right;">↓</p>	<p>- 오류 수정(TST470 0-673-2020)</p>

Present	Amendment	Note																														
<p style="text-align: center;">Ch.7 CAR FERRIES AND ROLL-ON/ROLL-OFF SHIPS</p> <p style="text-align: center;">Section 3 Deck Structure</p> <p>301. Application [See Rule]</p> <p><omit></p> <p>Table 7.7.1 Coefficient <i>C</i></p> <table border="1" data-bbox="125 778 978 1177"> <thead> <tr> <th colspan="2" data-bbox="125 778 479 858">Frames \ Vehicles</th> <th data-bbox="479 778 707 858">Vehicles used for cargo handling</th> <th data-bbox="707 778 978 858">Other vehicles</th> </tr> </thead> <tbody> <tr> <td data-bbox="125 858 275 1042" rowspan="2">Midship part of strength deck</td> <td data-bbox="275 858 479 948">Longitudinal framing</td> <td data-bbox="479 858 707 948">$4.6 \sqrt{K}$</td> <td data-bbox="707 858 978 948">$\frac{3.64 \sqrt{K}}{\sqrt{1-0.64f_D K}}$</td> </tr> <tr> <td data-bbox="275 948 479 1042">Transverse framing</td> <td data-bbox="479 948 707 1042">$4.9 \sqrt{K}$</td> <td data-bbox="707 948 978 1042">$\frac{5.15 \sqrt{K}}{\sqrt{1-0.41(f_D K)^2}}$</td> </tr> <tr> <td colspan="2" data-bbox="125 1042 479 1098">Elsewhere</td> <td data-bbox="479 1042 707 1098">$4.6 \sqrt{K}$</td> <td data-bbox="707 1042 978 1098">$5.2 \sqrt{K}$</td> </tr> </tbody> </table> <p>f_D = as specified in Pt 3, Ch 1, 124 of the Rules. In longitudinal framing system, it is to be less than $0.79/K$.</p> <p>303. <omit></p>	Frames \ Vehicles		Vehicles used for cargo handling	Other vehicles	Midship part of strength deck	Longitudinal framing	$4.6 \sqrt{K}$	$\frac{3.64 \sqrt{K}}{\sqrt{1-0.64f_D K}}$	Transverse framing	$4.9 \sqrt{K}$	$\frac{5.15 \sqrt{K}}{\sqrt{1-0.41(f_D K)^2}}$	Elsewhere		$4.6 \sqrt{K}$	$5.2 \sqrt{K}$	<p style="text-align: center;">Ch.7 CAR FERRIES AND ROLL-ON/ROLL-OFF SHIPS</p> <p style="text-align: center;">Section 3 Deck Structure</p> <p>301. Application [See Rule]</p> <p><same as current></p> <p>Table 7.7.1 Coefficient <i>C</i></p> <table border="1" data-bbox="1032 778 1886 1177"> <thead> <tr> <th colspan="2" data-bbox="1032 778 1386 858">Frames \ Vehicles</th> <th data-bbox="1386 778 1615 858">Vehicles used for cargo handling</th> <th data-bbox="1615 778 1886 858">Other vehicles</th> </tr> </thead> <tbody> <tr> <td data-bbox="1032 858 1182 1042" rowspan="2">Midship part of strength deck</td> <td data-bbox="1182 858 1386 948">Longitudinal framing</td> <td data-bbox="1386 858 1615 948">$4.6 \sqrt{K}$</td> <td data-bbox="1615 858 1886 948">$\frac{3.64 \sqrt{K}}{\sqrt{1-0.64f_D K}}$</td> </tr> <tr> <td data-bbox="1182 948 1386 1042">Transverse framing</td> <td data-bbox="1386 948 1615 1042">$4.9 \sqrt{K}$</td> <td data-bbox="1615 948 1886 1042">$\frac{5.15 \sqrt{K}}{\sqrt{1-0.41(f_D K)^2}}$</td> </tr> <tr> <td colspan="2" data-bbox="1032 1042 1386 1098">Elsewhere</td> <td data-bbox="1386 1042 1615 1098">$4.6 \sqrt{K}$</td> <td data-bbox="1615 1042 1886 1098">$5.2 \sqrt{K}$</td> </tr> </tbody> </table> <p>f_D = as specified in Pt 3, Ch 1, 124 of the Rules. In longitudinal framing system, it is to be $0.79/K$ or more.</p> <p>303. <same as current></p>	Frames \ Vehicles		Vehicles used for cargo handling	Other vehicles	Midship part of strength deck	Longitudinal framing	$4.6 \sqrt{K}$	$\frac{3.64 \sqrt{K}}{\sqrt{1-0.64f_D K}}$	Transverse framing	$4.9 \sqrt{K}$	$\frac{5.15 \sqrt{K}}{\sqrt{1-0.41(f_D K)^2}}$	Elsewhere		$4.6 \sqrt{K}$	$5.2 \sqrt{K}$	<p>- 오류 수정 (HUT4000-2680-2020)</p>
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Amendments of the Guidance

(draft)

Pt. 7 Ships of Special Service-1

Annex 7-2 Guidance for the Container Securing Arrangements



2021. 01.

Hull Rule Development Team

Pt.7 Ships of Special Service -1

Present	Amendment	Note
<p style="text-align: center;">Present <Guidance></p> <p style="text-align: center;">Annex 7-2 Guidance for the Container Securing Arrangements</p> <p>1. ~ 6. <omit></p> <p>7. Container support structure (2019)</p> <p>(1) General</p> <p>(A) Drawings for lashing bridges, cell guides, container supports and other container support structures are to be submitted to the Society for approval.</p> <p>(B) The lower part of fixed container securing system of hatch covers and hull structures should be suitably reinforced</p> <p>(C) FE(Finite Element) method or Grillage analysis can be used for the strength evaluation. The modeling and evaluation should be of a gross scantling, and the element size should be such that the behavior of the structure can be faithfully reproduced.</p> <p>(D) The evaluation of the hatch cover strength is to be in accordance with the requirements in Pt 4, Ch 2 of the Rules.</p> <p>(E) If a lashing bridge of the Mickey Mouse type is applied, special considerations should be taken to constrain the lateral displacement of the structure.</p> <p>(2) Structural strength evaluation</p> <p>(A) ~ (B) <omit></p> <p>(C) Loads</p> <p>(a) Design loads <omit></p>	<p style="text-align: center;">Amendment <Guidance></p> <p style="text-align: center;">Annex 7-2 Guidance for the Container Securing Arrangements</p> <p>1. ~ 7. <same as current></p> <p>7. Container support structure (2021)</p> <p>(1) General</p> <p>(A) Drawings for lashing bridges, cell guides, container supports and other container support structures are to be submitted to the Society for approval.</p> <p>(B) The lower part of fixed container securing system of hatch covers and hull structures should be suitably reinforced</p> <p>(C) FE(Finite Element) method or Grillage analysis can be used for the strength evaluation. The modeling and evaluation should be of a gross scantling, and the element size should be such that the behavior of the structure can be faithfully reproduced.</p> <p>(D) The evaluation of the hatch cover strength is to be in accordance with the requirements in Pt 4, Ch 2 of the Rules.</p> <p>(E) If a lashing bridge of the Mickey Mouse type is applied, special considerations should be taken to constrain the lateral displacement of the structure.</p> <p><u>(F) If requested by the owner or deemed necessary by the Society, vibration evaluation on the lashing bridge can be performed. (2021)</u></p> <p>(2) Structural strength evaluation</p> <p>(A) ~ (B) <same as current></p> <p>(C) Loads</p> <p>(a) Design loads <same as current></p>	

Present

- (b) Combination of design loads
- (i) Lashing bridge
- <omit>**

The design loads should be the value calculated according to the container stowage arrangement. Where SWLs are used as design loads, the values shown in Fig 3 can be used.

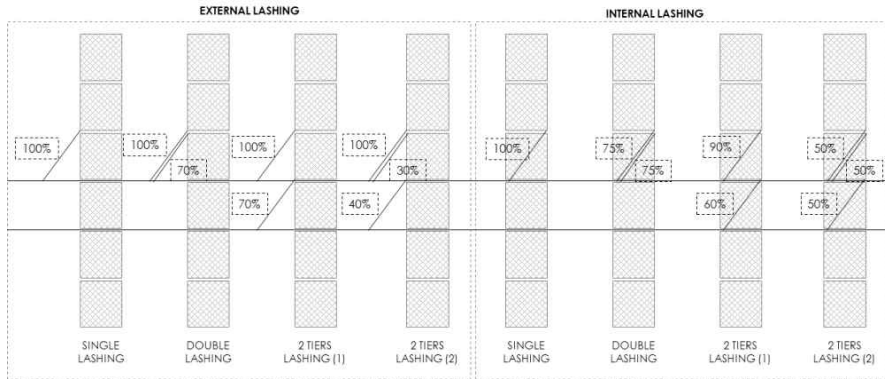


Fig 3 Examples for load distribution of SWLs as design loads (2019)

- (ii) ~ (iv) <omit>

(D) ~ (F) <omit>

- (3) Vibration analysis <omit>

Amendment

- (b) Combination of design loads
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- <same as current>**

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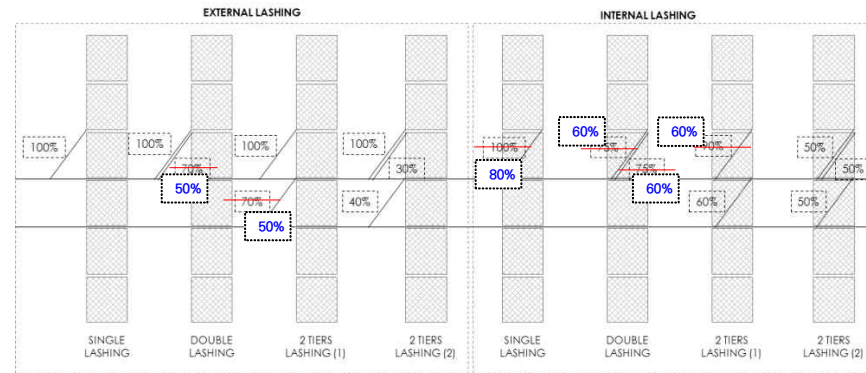


Fig 3 Examples for load distribution of SWLs as design loads (2021)

- (ii) ~ (iv) <same as current>

(D) ~ (F) <same as current>

- (3) Vibration analysis <same as current>

Present	Amendment	Note
<p>8. Determination and application of forces</p> <p>(1) Symbols and definitions (2019)</p> <p>(A) Definitions and symbols of terms are as follows.</p> <p><omit></p> <p>a_i : distance between center of container corner casting (m), (see Fig 5)</p> <p>a_x, a_y, a_z : acceleration of x, y, z -direction (m/sec²)</p> <p>b_i, c_i : length and height of the i-th container (m), (see Fig 5)</p> <p>d_i : height of the i-th container fitting between containers in way of vertical direction (m), (see Fig 5)</p> <p>f_h, f_p, f_r : route specific reduction factor for heave, pitch, roll motion, (see Table 8)</p> <p><omit></p> <p>k_r : radius of roll gyration(m), generally 0.35B</p> <p>l_i : length of lashing device at the bottom of i-th container (mm)</p> <p>n : number of total tiers in a row</p> <p><omit></p>	<p>8. Determination and application of forces</p> <p>(1) Symbols and definitions (2021)</p> <p>(A) Definitions and symbols of terms are as follows.</p> <p><omit></p> <p>a_i : distance between center of container corner casting (m), (see Fig 5)</p> <p>a_x, a_y, a_z : acceleration of x, y, z -direction (m/sec²)</p> <p>b_i, c_i : length and height of the i-th container (m), (see Fig 5)</p> <p>d_i : height of the i-th container fitting between containers in way of vertical direction (m), (see Fig 5)</p> <p><u>e_i</u> : The horizontal gap between the container and the lashing bridge (mm)</p> <p><u>$e_i = 0$</u> : without lashing bridge,</p> <p><u>$e_i = 700 \sim 1,300$</u> : with lashing bridge</p> <p>f_h, f_p, f_r : route specific reduction factor for heave, pitch, roll motion, (see Table 8)</p> <p><omit></p> <p>k_r : radius of roll gyration(m), generally 0.35B</p> <p>l_i : length of lashing device at the bottom of i-th container (mm)</p> <p>$l_i = \sqrt{a_i^2 + c_i^2 + e_i^2}$</p> <p>$n$: number of total tiers in a row</p> <p>- 28 - <omit></p>	

Present	Amendment	Note
<div data-bbox="197 245 869 619" data-label="Diagram"> <p>Diagram showing the dimensions of a container. The front view shows a rectangular container with a curved top. Dimensions are labeled: h_i (total height), c_i (height of the main body), d_i (height of the base), and a_i (width). The side view shows the container with a wavy line representing the door edge, labeled 'Door Side' and 'Closed Side', with a width dimension b_i.</p> </div> <p data-bbox="421 651 772 683">Fig 5 Dimension of container</p> <p data-bbox="152 746 353 778">(2) ~ (3) <omit></p> <p data-bbox="120 788 618 820">8. Determination and application of forces</p> <p data-bbox="152 829 618 861">(4) Arrangements incorporating lashings</p> <p data-bbox="197 861 376 893">(A), (B) <omit></p> <p data-bbox="197 893 981 1107">(C) In the case of a para-lashing arrangement where two lashing rods and two turnbuckles are attached to adjacent corner castings, each cross-section area is set to 100% of the single rod section area. In the case of para-lashing arrangement in which one turnbuckle and two lashing rods are used in combination, shown on (Fig 8), <u>equivalent cross-section area is set to 150% of the single rod section area.</u> (2019)</p> <p data-bbox="483 1200 703 1232">Fig 8 <omission></p> <p data-bbox="197 1292 389 1324">(D) ~ (I) <omit></p> <p data-bbox="152 1353 362 1385">(5) ~ (6) <omit></p> <p data-bbox="120 1394 255 1426">9. <omit></p>	<div data-bbox="1084 236 1787 603" data-label="Diagram"> <p>Diagram showing the dimensions of a container with a lashing bridge. The front view shows a rectangular container with a curved top and a lashing bridge on the right side. Dimensions are labeled: h_i (total height), c_i (height of the main body), d_i (height of the base), a_i (width), and e_i (width of the lashing bridge). The side view shows the container with a wavy line representing the door edge, labeled 'Door Side' and 'Closed Side', with a width dimension b_i.</p> </div> <p data-bbox="1330 638 1682 670">Fig 5 Dimension of container</p> <p data-bbox="1061 727 1263 759">(2) ~ (3) <omit></p> <p data-bbox="1030 769 1527 801">8. Determination and application of forces</p> <p data-bbox="1061 810 1527 842">(4) Arrangements incorporating lashings</p> <p data-bbox="1106 842 1429 874">(A), (B) <same as current></p> <p data-bbox="1106 874 1890 1088">(C) In the case of a para-lashing arrangement where two lashing rods and two turnbuckles are attached to adjacent corner castings, total cross-section area is set to the sum of each rod section area. In the case of para-lashing arrangement in which one turnbuckle and two lashing rods are used in combination, shown on (Fig 8), <u>the same section area is used.</u> (2021)</p> <p data-bbox="1344 1181 1657 1212">Fig 8 <same as current></p> <p data-bbox="1106 1273 1438 1305">(D) ~ (I) <same as current></p> <p data-bbox="1061 1334 1411 1366">(5) ~ (6) <same as current></p> <p data-bbox="1030 1375 1303 1407">9. <same as current></p>	<p data-bbox="1912 823 2136 855">- equalizing device</p> <div data-bbox="1912 868 2136 1142" data-label="Image"> <p>Diagram showing a close-up of a lashing arrangement. Two lashing rods are attached to adjacent corner castings using a turnbuckle. The arrangement is labeled as an equalizing device.</p> </div> <p data-bbox="1989 1155 2060 1187">Fig 8</p>

GUIDANCE RELATING TO THE RULES FOR THE CLASSIFICATION OF STEEL SHIPS

(Guidance Part 7 Ships of Special Service(Ch 1-4, 7-10))

- External Opinion Inquiry -

2020. 07.



Hull Rule Development Team

- Main Amendments -

(1) Enter into force on 1 January 2021 (the contract date for ship construction)

● To reflect Request for Establishment/Revision of Classification Technical Rules

- To reflect UR S33 Rev.2

Present	Amendment	Reason
<p style="text-align: center;">Annex 7-8 Instruction for Use of Extremely Thick Steel in Container Ships</p> <p>1. Application</p> <p>(1) General</p> <p>(A) <Omitted></p> <p>(B) <Omitted></p> <p>(C) This instruction gives the basic concepts for application of extremely thick steel plates to longitudinal structural members in the upper deck and hatch coaming structural region (i.e. upper deck plating, hatch side coaming and hatch coaming top).</p> <p>(D) The application of the measures specified in 2, 3 and 4 of this instruction is to be in accordance with 5.</p> <p>(E) <New></p> <p>(2) Steel Grade</p> <p>(A) This instruction is to be applied to when any of YP36, YP40 and YP47 steel plates are used for the longitudinal structure members.</p> <p>(B) <Omitted></p> <p>(C) In the case that YP47 steel plates are used for longitudinal structural members in the upper deck region such as upper deck plating, hatch side coaming and hatch coaming top and their attached longitudinals, the grade of YP47 steel plates is to be EH47-H specified in Pt 2, Ch 1, Sec 3.</p>	<p style="text-align: center;">Annex 7-8 Instruction for Use of Extremely Thick Steel in Container Ships</p> <p>1. Application</p> <p>(1) General</p> <p>(A) <same as the present rule></p> <p>(B) <same as the present rule></p> <p>(C) This instruction gives the basic concepts for application of extremely thick steel plates to longitudinal structural members in the upper deck.</p> <p>(D) <u>This instruction defines the following methods to apply to the extremely thick plates of container ships for preventing the crack initiation and propagation:</u></p> <p>a) <u>Non-Destructive Testing (NDT) during construction detailed in 2</u></p> <p>b) <u>Welding to increase toughness in 3</u></p> <p>c) <u>Brittle crack arrest design detailed in 4</u></p> <p>The application of the measures specified in 2, 3 and 4 of this instruction is to be in accordance with 5.</p> <p>(E) <u>For the application of this instruction, the upper deck region means the upper deck plating, hatch side coaming plating, hatch coaming top plating and their attached longitudinals.</u></p> <p>(2) Steel Grade</p> <p>(A) This instruction is to be applied to when any of YP36, YP40 and YP47 steel plates are used for the longitudinal structure members <u>in the upper deck region.</u></p> <p>(B) <same as the present rule></p> <p>(C) In case YP47 steel plates are used for longitudinal structural members in the upper deck region, the steel plates <u>are</u> to be EH47-H specified in Pt 2, Ch 1, Sec 3.</p>	<p>Reflection of UR S33 Rev.2</p>

Present	Amendment	Reason
<p>(3) <Omitted> 2. ~ 3. <Omitted></p> <p>4. Brittle crack arrest design(Measure No. 3, 4 and 5 of 5)</p> <p>(1) General</p> <p>(A)Measures for prevention of brittle crack propagation, which is the same meaning as Brittle crack arrest design, are to be taken within the cargo hold region.</p> <p>(B) The approach given in this section generally applies to the block-to-block joints but it should be noted that cracks can initiate and propagate away from such joints. Therefore, appropriate measures should be considered in accordance with (2)(B)(b).</p> <p>(C) Brittle crack arrest steel is defined in Pt 2, Ch 1, Sec 3. Only for the scope of this Guidance, the definition in Pt 2, Ch 1, Sec 3 also applies to YP36 and YP40 steels.</p> <p>(2) Functional requirements of brittle crack arrest design</p> <p>The purpose of the brittle crack design is aimed at arresting propagation of a crack at a proper position and to prevent large scale fracture of the hull girder.</p> <p>(A) The point of a brittle crack initiation is to be considered in the block-to-block butt joints both of hatch side coaming and upper deck.</p>	<p>(3) <same as the present rule> 2. ~ 3. <same as the present rule></p> <p>4. Brittle crack arrest design(Measure No. 3, 4 and 5 of 5)</p> <p>(1) General</p> <p>(A) <u>The brittle crack arrest steel method detailed in 4 may be used when the measures No. 3, 4, and 5 of 5 are applied and the steel grade material of the upper deck is not higher than YP40. Otherwise other means for preventing the crack initiation and propagation shall be agreed with the Society.</u></p> <p>(B) Measures for prevention of brittle crack propagation are to be taken within the cargo hold region. <u>A brittle crack arrest design means a design using these measures.</u></p> <p>(C) The <u>measures</u> given in this section generally <u>apply</u> to the block-to-block joints but it should be noted that cracks can initiate and propagate away from such joints. Therefore, appropriate measures should <u>also</u> be considered <u>for the cases specified in (2)(B)(b).</u></p> <p>(D) <u>Brittle crack arrest steels are</u> defined in Pt 2, Ch 1, Sec 3.</p> <p>(2) Functional requirements of brittle crack arrest design</p> <p>The purpose of the brittle crack design is aimed at arresting propagation of a crack at a proper position and to prevent large scale fracture of the hull girder.</p> <p>(A) <u>The locations of most concern fro brittle crack initiation and propagation are the block-to-block butt weld joints either on hatch side coaming or on upper deck plating. Other locations in block fabrication where joints are aligned may also present higher opportunity for crack initiation and propagation along butt weld joints.</u></p>	<p>Reflection of UR S33 Rev.2</p>

Present	Amendment	Reason
<p>(B) Both of the following cases are to be considered: a)~b) <Omitted> c) “Other weld areas” in (b) includes the following(refer to Fig 4):</p> <ul style="list-style-type: none"> ① Fillet welds where hatch side coaming plating, including top plating, meet longitudinals; ② Fillet welds where hatch side coaming plating, including top plating and longitudinals, meet attachments. (e.g., Fillet welds where hatch side top plating meet hatch cover pad plating.); ③ Fillet welds where hatch side coaming top plating meet hatch side coaming plating; ④ Fillet welds where hatch side coaming plating meet upper deck plating; ⑤ Fillet welds where upper deck plating meet inner hull/bulkheads; ⑥ Fillet welds where upper deck plating meet longitudinals; and ⑦ Fillet welds where sheer strakes meet upper deck plating. <p>(3) Concept examples of brittle crack arrest design The following are considered to be acceptable examples of brittle crack arrest-design. The detail design arrangements are to be submitted for approval by the Society. Other concept designs may be considered and accepted for review by each Classification Society.</p> <p>(A) ~ (E) <Omitted></p>	<p>(B) Both of the following cases are to be considered: a)~b) <same as the present rule> c) “Other weld” in (b) includes the following(refer to Fig 4):</p> <ul style="list-style-type: none"> ① Fillet welds <u>between</u> hatch side coaming plating, including top plating, <u>and</u> longitudinals; ② Fillet welds <u>between</u> hatch side coaming plating, including top plating and longitudinals, <u>and</u> attachments. (e.g., Fillet welds <u>between</u> hatch side top plating <u>and</u> hatch cover pad plating.); ③ Fillet welds <u>between</u> hatch side coaming top plating <u>and</u> hatch side coaming plating; ④ Fillet welds <u>between</u> hatch side coaming plating <u>and</u> upper deck plating; ⑤ Fillet welds <u>between</u> upper deck plating <u>and</u> inner hull/bulkheads; ⑥ Fillet welds <u>between</u> upper deck plating <u>and</u> longitudinals; and ⑦ Fillet welds <u>between</u> sheer strakes <u>and</u> upper deck plating. <p>(3) Concept examples of brittle crack arrest design The followings are considered to be acceptable examples of <u>measures that can be used on a brittle crack arrest-design to prevent brittle crack propagations</u>. The detail design arrangements are to be submitted <u>to the Society</u> for <u>their</u> approval. Other <u>measures</u> may be considered and accepted for review by <u>the</u> Society.</p> <p>(A) ~ (E) <same as the present rule></p>	<p>Reflection of UR S33 Rev.2</p>

Present	Amendment	Reason														
(4) <New>	<p>(4) Selection of brittle crack arrest steels</p> <p>(A) <u>The brittle crack arrest steels fitted in the upper deck region of container ships are to comply with Table 1 where suffixes BCA1 and BCA2 are defined in Rule Part 2.</u></p> <p>(B) <u>The brittle crack arrest steel property is to be selected for each individual structural member with thickness above 50mm according to Table 1.</u></p> <p style="text-align: center;"><u>Table 1 Brittle crack arrest steel requirement in function of structural members and thickness</u></p> <table border="1" data-bbox="1037 593 1818 884"> <thead> <tr> <th>Structural Members plating⁽¹⁾</th> <th>Thickness(mm)</th> <th>Brittle crack arrest steel requirement</th> </tr> </thead> <tbody> <tr> <td>Upper deck</td> <td>$50 < t \leq 100$</td> <td>Steel grade YP36 or 40 with suffix BCA1</td> </tr> <tr> <td rowspan="2">Hatch coaming side</td> <td>$50 < t \leq 80$</td> <td>Steel grade YP40 or 47 with suffix BCA1</td> </tr> <tr> <td>$80 < t \leq 100$</td> <td>Steel grade YP40 or 47 with suffix BCA2</td> </tr> <tr> <td colspan="3"> Note (1)Excluding their attached longitudinals </td> </tr> </tbody> </table> <p>(C) <u>When brittle crack arrest steels as specified in Table 1 are used, the weld joints between the hatch coaming side and the upper deck are to be partial penetration weld details approved by the Society.</u> <u>In the vicinity of ship block joints, alternative weld details may be used for the deck and hatch coaming side connection provided additional means for preventing the crack propagation are implemented and agreed by the Society in this connection area.</u></p>	Structural Members plating ⁽¹⁾	Thickness(mm)	Brittle crack arrest steel requirement	Upper deck	$50 < t \leq 100$	Steel grade YP36 or 40 with suffix BCA1	Hatch coaming side	$50 < t \leq 80$	Steel grade YP40 or 47 with suffix BCA1	$80 < t \leq 100$	Steel grade YP40 or 47 with suffix BCA2	Note (1)Excluding their attached longitudinals			<p>Reflection of UR S33 Rev.2</p>
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<p>5. Measures for Extremely Thick Steel Plates</p> <p>The thickness and the yield strength shown in the Table 2 apply to the hatch coaming structure and are the controlling parameters for the application of countermeasures. If the as built thickness of the hatch coaming structure is below the values contained in the table, countermeasures are not necessary regardless of the thickness and yield strength of the upper deck.</p> <p style="text-align: center;">Table 2</p> <table border="1" data-bbox="197 528 981 719"> <thead> <tr> <th>Yield strength</th> <th>Thickness (mm)</th> <th>Option</th> <th>Measures</th> </tr> </thead> <tbody> <tr> <td>36</td> <td></td> <td></td> <td></td> </tr> <tr> <td>40</td> <td></td> <td></td> <td></td> </tr> <tr> <td>47(FCAW)</td> <td></td> <td></td> <td></td> </tr> <tr> <td>47(EGW)</td> <td></td> <td></td> <td></td> </tr> </tbody> </table> <table border="1" data-bbox="212 724 958 994"> <thead> <tr> <th>NO.</th> <th>Measures</th> </tr> </thead> <tbody> <tr> <td>1</td> <td></td> </tr> <tr> <td>2</td> <td></td> </tr> <tr> <td>3</td> <td></td> </tr> <tr> <td>4</td> <td></td> </tr> <tr> <td>5</td> <td>Brittle crack arrest design against propagation of cracks from other weld areas such as fillets and attachment welds. (during construction) See 4(3)(A)</td> </tr> </tbody> </table> <p><Omitted></p>	Yield strength	Thickness (mm)	Option	Measures	36				40				47(FCAW)				47(EGW)				NO.	Measures	1		2		3		4		5	Brittle crack arrest design against propagation of cracks from other weld areas such as fillets and attachment welds. (during construction) See 4(3)(A)	<p>5. Measures for Extremely Thick Steel Plates</p> <p>The thickness and the yield strength shown in the Table 2 apply to the hatch coaming <u>top plating and side plating</u>, and are the controlling parameters for the application of countermeasures. <u>These controlling parameters are not applicable for the upper deck.</u></p> <p>If the as built thickness of the hatch coaming <u>top plating and side plating</u> is below the values contained in the table, countermeasures are not necessary regardless of the thickness and yield strength of the upper deck.</p> <p style="text-align: center;">Table 2 <u>Measures for extremely thick steel plates</u></p> <table border="1" data-bbox="1037 603 1821 794"> <thead> <tr> <th>Yield strength</th> <th>Thickness (mm)</th> <th>Option</th> <th>Measures</th> </tr> </thead> <tbody> <tr> <td>36</td> <td></td> <td></td> <td></td> </tr> <tr> <td>40</td> <td></td> <td></td> <td></td> </tr> <tr> <td>47(FCAW)</td> <td></td> <td></td> <td></td> </tr> <tr> <td>47(EGW)</td> <td></td> <td></td> <td></td> </tr> </tbody> </table> <table border="1" data-bbox="1052 799 1798 1069"> <thead> <tr> <th>NO.</th> <th>Measures</th> </tr> </thead> <tbody> <tr> <td>1</td> <td></td> </tr> <tr> <td>2</td> <td></td> </tr> <tr> <td>3</td> <td></td> </tr> <tr> <td>4</td> <td></td> </tr> <tr> <td>5</td> <td>Brittle crack arrest design against propagation of cracks from other weld such as fillets and attachment welds. (during construction) See 4(3)(A)</td> </tr> </tbody> </table> <p><same as the present rule></p>	Yield strength	Thickness (mm)	Option	Measures	36				40				47(FCAW)				47(EGW)				NO.	Measures	1		2		3		4		5	Brittle crack arrest design against propagation of cracks from other weld such as fillets and attachment welds. (during construction) See 4(3)(A)	<p>Reflection of UR S33 Rev.2</p>
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