Order no. 769 of 28 April 2021
Issued by the Danish Maritime Authority

Order on amendment of order on construction and equipment, etc. of ships, implementing the international Convention on Safety of Life at Sea (SOLAS)

§ 1

In order no. 1154 of 23 November 2019 on construction and equipment, etc. of ships, implementing the international Convention on Safety of Life at Sea (SOLAS) the following amendments are included:

1. In Chapter II-1 the table of content is amended in the following way:
»The text "Regulation 3-13 – Guidelines for the construction and installation of suspended decks with associated safety devices in passenger ships" is deleted.
After the text "Regulation 19 Stability management", a new line is included with the following text:
Regulation 19-1 Damage control drills for passenger ships«

2. In Chapter II-1, Regulation 3-13 is deleted.

3. Chapter II-1, Regulation 7-2, sections 2-4 is phrased in the following way:
»2. For passenger ships, and cargo ships fitted with cross-flooding devices, the factor $s_{intermediate,i}$ is taken as the least of the s-factors obtained from all flooding stages including the stage before equalization, if any, and is to be calculated as follows:
1

$$S_{intermediate,i} = \left[\frac{GZ_{max}}{0.05} \times \frac{Range}{7}\right]^{\frac{1}{4}}$$

where GZ_{max} is not to be taken as more than 0.05 m and *Range* as not more than 7°. $S_{intermediate,i} = 0$, if the intermediate heel angle exceeds 15° for passenger ships and 30° for cargo ships.

For cargo ships not fitted with cross-flooding devices the factor $S_{intermediate,i}$ is taken as unity, except if the Administration considers that the stability in intermediate stages of flooding may be insufficient, it should require further investigation thereof.
For passenger and cargo ships, where cross-flooding devices are fitted, the time for equalization shall not exceed 10 min.

3. The factor $S_{final,i}$ shall be obtained from the formula:

$$S_{\text{final},i} = K \times \left[\frac{GZ_{\max}}{TGZ_{\max}} \times \frac{Range}{TRange} \right]^{\frac{1}{4}}$$

where:

$GZ_{\max}$ is not to be taken as more than $TGZ_{\max}$;

Range is not to be taken as more than TRange;

$TGZ_{\max}$ = 0.20 m, for ro-ro passenger ships each damage case that involves a ro-ro space,

$TGZ_{\max}$ = 0.12 m, otherwise;

TRange = 20°, for ro-ro passenger ships each damage case that involves a ro-ro space,

TRange = 16°, otherwise;

K = 1 if $\theta_e \leq \theta_{\min}$

K = 0 if $\theta_e \geq \theta_{\max}$

$$K = \sqrt{\frac{\theta_{\max} - \theta_e}{\theta_{\max} - \theta_{\min}}} \quad \text{otherwise,}$$

where:

$\theta_{\min}$ is 7° for passenger ships and 25° for cargo ships; and

$\theta_{\max}$ is 15° for passenger ships and 30° for cargo ships.

4. The factor Smom,i is applicable only to passenger ships (for cargo ships Smom,i shall be taken as unity) and shall be calculated at the final equilibrium from the formula:

$$S_{mom,i} = \frac{(GZ_{max} - 0.04) \times Displacement}{M_{heel}}$$

where:

Displacement is the intact displacement at the respective draught (d_s, d_p or d_l).

M_{heel} is the maximum assumed heeling moment as calculated in accordance with subparagraph 4.1; and

$s_{mom,i} \leq 1$

4.1. The heeling moment Mheel is to be calculated as follows:

Mheel = maximum (Mpassenger or Mwind or Msurvivalcraft)

4.1.1. Mpassenger is the maximum assumed heeling moment resulting from movement of passengers, and is to be obtained as follows:

Mpassenger = $(0.075 \cdot Np) \cdot (0.45 \cdot B)$ (t · m)

where:

Np is the maximum number of passengers permitted to be on board in the service condition corresponding to the deepest subdivision draught under consideration; and

B is the breath of the ship as defined in regulation 2.8.

Alternatively, the heeling moment may be calculated assuming the passengers are distributed with 4 persons per square metre on available deck areas towards one side of the ship on the decks where muster stations are located and in such a way that they produce the most adverse heeling moment. In doing so, a weight of 75 kg per passenger is to be assumed.

4.1.2. Mwind is the maximum assumed wind force acting in a damage situation:

Mwind = $(P \cdot A \cdot Z) / 9{,}806$ (t · m)

where:
$P = 120$ N/m2;

A = projected lateral area above waterline;

Z = distance from centre of lateral projected area above waterline to $T/2$; and

T = respective draught (ds, dp or di).

4.1.3. *Ms*urvivalcraft is the maximum assumed heeling moment due to the launching of all fully loaded davit- launched survival craft on one side of the ship. It shall be calculated using the following assumptions:

4.1.3.1. all lifeboats and rescue boats fitted on the side to which the ship has heeled after having sustained damage shall be assumed to be swung out fully loaded and ready for lowering;

4.1.3.2. for lifeboats which are arranged to be launched fully loaded from the stowed position, the maximum heeling moment during launching shall be taken;

4.1.3.3. a fully loaded davit-launched liferaft attached to each davit on the side to which the ship has heeled after having sustained damage shall be assumed to be swung out ready for lowering;

4.1.3.4. persons not in the life-saving appliances which are swung out shall not provide either additional heeling or righting moment; and

4.1.3.5. life-saving appliances on the side of the ship opposite to the side to which the ship has heeled shall be assumed to be in a stowed position.

4. In Chapter II-1, the heading of Regulation 19-1 is phrased in the following way:
»**Regulation 19-1 – Damage control drills for passenger ships**«

5. Chapter II-1, Regulation 19, section 1 is phrased in the following way:
»**1** This regulation applies to passenger ships constructed before, on or after 1 January 2020.«

6. In Chapter II-2, the notes to table 19.1, table 19.2 and notes to table 19.2, table 19.3 and the notes to table 19.3 are replaced by the following text:

»**Table 19.1 – Application of the requirements to different modes of carriage of dangerous goods in ships and cargo spaces**

Where X appears in table 19.1, it means this requirement is applicable to all classes of danger- ous goods as given in the appropriate line of table 19.3, except as indicated by the notes.

Regulation 19.2.2 ►	Weather decks (.1 to .5 inclusive)	.1	.2	.3		.4	.5
Regulation 19 ▼		Not speci- fically de- signed	Container cargo spaces	Closed ro- ro spaces[5]	Open ro-ro spaces	Solid dangerous goods in	Shipborne barges
.3.1.1	X	X	X	X	X	For applica tion of	X
.3.1.2	X	X	X	X	X		-
.3.1.3	-	X	X	X	X		X

.3.1.4	-	X	X	X	X		X
.3.2	-	X	X	X	X		X⁴
.3.3	-	X	X	X	-		X⁴
.3.4.1	-	X	X¹	X	-		X⁴
.3.4.2	-	X	X¹	X	-		X⁴
.3.5	-	X	X	X	-		-
.3.6.1	X	X	X	X	X		-
.3.6.2	X	X	X	X	X		-
.3.7	X	X	-	-	X		-
.3.8	X	X	X²	X	X		-
.3.9	-	-	-	X³	X		-
.3.10.1	-	-	-	X	-		-
.3.10.2	-	-	-	X	-		-

Notes:

1 For classes 4 and 5.1 solids not applicable to closed freight containers. For classes 2, 3, 6.1 and 8 when carried in closed freight containers, the ventilation rate may be reduced to not less than two air changes per hour. For classes 4 and 5.1 liquids when carried in closed freight containers, the ventilation rate may be reduced to not less than two air changes per hour. For the purpose of this requirement a portable tank is a closed freight container.

2 Applicable to decks only.

3 Applies only to closed ro-ro spaces, not capable of being sealed.

4 In the special case where the barges are capable of containing flammable vapours or alternatively if they are capable of discharging flammable vapours to a safe space outside the barge carrier compartment by means of ventilation ducts connected to the barges, these requirements may be reduced or waived to the satisfaction of theAdministration.

5 Special category spaces shall be treated as closed ro-ro spaces when dangerous goods are carried.

Table 19.2 – Application of the requirements to different classes of dangerous goods for ships and cargo spaces carrying solid dangerous goods in bulk

Class ► Regulation 19 ▼	4.1	4.2	4.3⁶	5.1	6.1	8	9
.3.1.1	x	x	-	x	-	-	x
.3.1.2	x	x	-	x	-	-	x
.3.2	x	x⁷	x	x⁸	-	-	x⁸
.3.4.1	-	x⁷	x	-	-	-	-
.3.4.2	x⁹	x⁷	x	x⁷,⁹	-	-	x⁷,⁹
.3.4.3	x	x	x	x	x	x	x
.3.6	x	x	x	x	x	x	x
.3.8	x	x	x	x⁷	-	-	x¹⁰

Notes:

6 The hazards of substances in this class which may be carried in bulk are such that special consideration shall be given by the Administration to the construction and equipment of the ship involved in addition to meeting the requirements enumerated in this table.

7 Only applicable to Seedcake containing solvent extractions, to Ammonium nitrate and to Ammonium nitrate fertilizers.

8 Only applicable to Ammonium nitrate and to Ammonium nitrate fertilizers. However, a degree of protection in accordance with standards contained in the International Electrotechnical Commission publication 60079, "Electrical apparatus for explosive gas atmospheres", is sufficient.

9 Only suitable wire mesh guards are required.

10 The requirements of the International Maritime Solid Bulk Cargoes (IMSBC) Code, adopted by resolution A.434(XI), as amended, are sufficient.

Table 19.3 – Application of the requirements to different classes of dangerous goods except solid dangerous goods in bulk

Class ►	1.1-1.6	1.4S	2.1	2.2	2.3	2.3	3	3	4.1	4.2	4.3	4.3
Regulation 19 ▼					flammable[20]	non-flammable	liquids FP[15] <23° C	liquids FP[15] ≥23ºC; ≤60ºC			liquids[21]	solids
.3.1.1	x	x	x	x	x	x	x	x	x	x	x	x
.3.1.2	x	x	x	x	x	x	x	x	x	x	x	x
.3.1.3	x	-	-	-	-	-	-	-	-	-	-	-
.3.1.4	x	-	-	-	-	-	-	-	-	-	-	-
.3.2	x	-	x	-	x	-	x	-	-	-	x[18]	-
.3.3	x	x	x	x	-	x	x	x	x	x	x	x
.3.4.1	-	-	x	-	-	x	x	-	x[11]	x[11]	x	x
.3.4.2	-	-	x	-	-	-	x	-	-	-	-	-
.3.5	-	-	-	-	-	-	x	-	-	-	-	-
.3.6	-	-	x	x	x	x	x	x	x	x	x	x
.3.7	-	-	-	-	-	-	x	x	x	x	x	x
.3.8	x[12]	-	x	x	x	x	x	x	x	x	x	x
.3.9	x	x	x	x	x	x	x	x	x	x	x	x
.3.10.1	x	x	x	x	x	x	x	x	x	x	x	x
.3.10.2	x	x	x	x	x	x	x	x	x	x	x	x

Class►	5.1	5.2	6.1	6.1	6.1	6.1	8	8	8	8	9
Regulation 19 ▼			liquids FP[15] <23ºC	liquids FP[15] ≥23ºC; ≤60ºC	liquids	solids	liquids FP[15] <23ºC	liquids FP[15] ≥23ºC; ≤60ºC	liquids	solids	
.3.1.1	x	x	x	x	x	x	x	x	x	x	x
.3.1.2	x	x	x	x	x	x	x	x	x	x	-
.3.1.3	-	-	-	-	-	-	-	-	-	-	-
.3.1.4	-	-	-	-	-	-	-	-	-	-	-
.3.2	-	-	x	-	-	-	x	-	-	-	x[17]
.3.3	x	-	x	x	x	x	x	x	x	x	-
.3.4.1	x[11]	-	x	x	-	x[11]	x	x	-	-	x[11]
.3.4.2	-	-	x	-	-	-	x	-	-	-	x[17]
.3.5	-	-	x	x	x	-	x	x[19]	x[19]	-	-
.3.6	x	x	x	x	x	x	x	x	x	x	x[14]

. 3.7	x	-	x	x	-	-	x	x	-	-	-
. 3.8	x[13]	x	x	x	-	-	x	x	-	-	-
. 3.9	x	x	x	x	x	x	x	x	x	x	x
. 3.10.1	x	x	x	x	x	x	x	x	x	x	x
. 3.10.2	x	x	x	x	x	x	x	x	x	x	x

Notes:

11 When "mechanically-ventilated spaces" are required by the IMDG Code.

12 Stow 3 m horizontally away from the machinery space boundaries in all cases.

13 Refer to the IMDG Code.

14 As appropriate to the goods to be carried.

15 FP means flashpoint.

16 Under the provisions of the IMDG Code, stowage of class 5.2 dangerous goods under deck or in enclosed ro-ro spaces is prohibited.

17 Only applicable to dangerous goods evolving flammable vapour listed in the IMDG Code.

18 Only applicable to dangerous goods having a flashpoint less than 23 C listed in the IMDG Code.

19 Only applicable to dangerous goods having a subsidiary risk class 6.1.

20 Under the provisions of the IMDG Code, stowage of class 2.3 having subsidiary risk class 2.1 under deck or in enclosed ro-ro spaces is prohibited.

21 Under the provisions of the IMDG Code, stowage of class 4.3 liquids having a flashpoint less than 23 C under deck or in enclosed ro-ro spaces is prohibited.

7. Chapter III, Regulation 30, section 3 is phrased in the following way:

»3. Damage control drills shall be conducted as required in regulation II-1/19-1.«

§ 2

This order enters into force on 10 May 2021.

Danish Maritime Authority, 29 April 2021

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