



Office of
Deputy Commissioner
of Maritime Affairs

THE REPUBLIC OF LIBERIA
LIBERIA MARITIME AUTHORITY

Marine Notice

SAF-012
Rev. 07/23

**TO: ALL SHIPOWNERS, OPERATORS, MASTERS AND OFFICERS OF
MERCHANT SHIPS AND AUTHORIZED CLASSIFICATION
SOCIETIES**

SUBJECT: Requirements for Safe Mooring

Reference: (a) SOLAS 1974, as amended, Chapter II-1/3-8
(b) [Resolution MSC. 474\(102\)](#)
(c) [MSC.1/Circ. 1619](#)
(d) [MSC.1/Circ.1620](#)
(e) [MSC.1/Circ.1175](#)
(f) [MSC.1/Circ.1175/Rev.1](#)
(g) [MSC.1/Circ.1362/Rev.2](#)

PURPOSE:

The purpose of this Marine Notice is to provide information on new requirements and related guidelines on towing and mooring equipment to improve the safety of seafarers during mooring and unmooring operations and to reduce accidents related to the handling of mooring lines or equipment.

BACKGROUND:

New ship designs, and especially the design of large ships, have resulted in optimized performance and a greater degree of complexity. However, this has not been extended to the design of ship's mooring arrangements. Despite major operational safety and health preserving improvements of how mooring operations are planned, performed and executed, there still occurs a high number of accidents during these operations.

Presently, mooring typically relies on a considerable amount of manual handling of mooring lines. The equipment used (winches, roller guides, bollards, capstans, fairleads, etc.) is the same as that used decades ago.

The combination of larger ships and the ensuing larger slope of mooring lines at a significantly larger height to the quay side, along with larger mooring winches and larger and heavier mooring lines, results in increased forces on the equipment, the structure and the quay side as well as increased occupational risks for the crew.

While shipyards aim at installing and dimensioning winches and hawsers in accordance with common concepts, many shipowners focus primarily on winches and conveying arrangements.

offering the flexibility necessary for the ship's future operation. Against this background, the ship management is left with the important task of adjusting the working conditions to the concept chosen, typically by means of operational measures intended to prevent or limit any dangerous situations arising during mooring operations.

However, there was also a need for more long-term initiatives that involve more innovative and smart mooring designs that ensure safe and healthy working conditions. New ships of 3,000 gross tonnage and above should be equipped with mooring arrangements which do not expose seafarers to the dynamic forces involved, which do not involve manual handling of mooring lines, and which eradicate the complexity of current mooring systems and cater for a better overview and improved efficiency.

At MSC 95 in June 2015, the Maritime Safety Committee agreed to revise SOLAS regulation II-1/3-8 and associated guidelines (MSC.1/Circ.1175) and develop new guidelines for safe mooring operations for all ships.

At MSC 102 in November 2022, the Maritime Safety Committee adopted amendments to SOLAS II-1/3-8 implementing new requirements, which enter into force on 1 January 2024 and issued related guidelines on towing and mooring equipment.

Ahead of the above date, shipowners, shipyards, ship designers, ship managers, bareboat charterers and other organizations or persons responsible for design of mooring arrangements and the selection of appropriate mooring equipment and fittings need to consider these upcoming regulatory changes and guidelines when finalizing any new build designs. Shipowners and operators need to ensure they have the required maintenance plans, procedures and records in place before these changes come into force.

APPLICABILITY:

| Date of Construction | Requirements | | Guidelines |
|--|---|---|--|
| Building contract is placed on or after 1 January 2024; or in the absence of a building contract, the keel of which is laid or which is at a similar stage of construction on or after 1 July 2024; or the delivery of which is on or after 1 January 2027 | Ships of 3,000 GT and above | New requirements in paragraphs 7 and 8 of Regulation II-1/3-8 (Paragraphs 1.1.1 to 1.1.3 below) | References (c) , (f) and (g) above |
| | Ships of less than 3,000 GT | Paragraph 1.1.4 below | References (c) , (f) and (g) above |
| Ships constructed on or after 1 January 2007 | Existing requirements in paragraphs 4 to 6 of Regulation II-1/3-8 (Paragraph 1.2 below) | | References (e) and (g) above |
| Maintenance and Inspection | Requirements | | Guidelines |
| All SOLAS certified ships in operation, both existing (retroactive) and new, after 1 January 2024 | Paragraph 9 of Regulation II-1/3-8 (Paragraph 1.3 below) | | References (d) and (g) above |

This regulation does not apply to emergency towing arrangements provided in accordance with Regulation II-1/3-4.

1.0 REQUIREMENTS

1.1 Ships with building contract on or after 1 January 2024; or constructed on or after 1 July 2024; or delivered on or after 1 January 2027

1.1.1 Ships shall be provided with arrangements, equipment and fittings of sufficient safe working load to enable the safe conduct of all towing and mooring operations associated with the normal operation of the ship meeting the appropriate requirements in Guidance on Shipboard Towing and Mooring Equipment, [reference \(f\)](#).

1.1.2 For ships of 3,000 gross tonnage and above, the mooring arrangement shall be designed, and the mooring equipment including lines shall be selected, in order to ensure occupational safety and safe mooring of the ship, based on the guidelines developed in [reference \(c\)](#). A towing and mooring arrangement plan shall be provided and kept on board based on guidelines in [reference \(c\)](#), section 5 of the annex to [reference \(f\)](#) and [reference \(g\)](#). Additionally:

.1 A supplement to the plan should contain a statement from the designer for information that [reference \(c\)](#) has been considered and deviations, if any, were unavoidable. The supplement to the plan should record any deviations in relation to the following:

.1 where a straight lead is not possible;

.2 unobstructed views;

.3 protection of winch operators;

.4 access to mooring equipment and fitting;

.5 exposure of the shipboard personnel to line under tension; and

.6 minimize the need for manual handling of towing and mooring lines

.2 The supplement should include justification for such deviations and suitable safety measures, if any. A reference to the supplement should be included in the plan so as to make the shipboard personnel aware of the safety measures which need to be considered during mooring operations due to deviations.

.3 If deviations are not found necessary, and the supplement to the plan is not needed, then this should be mentioned explicitly in plan.

1.1.3 The mooring winches' brake holding capacities should be less than 100% of the Ship Design Minimum Breaking Load (MBL_{SD}). The winches should be fitted with brakes that allow for the reliable setting of the brake rendering load.

1.1.4 For ships of less than 3,000 gross tonnage:

- .1 The mooring arrangement should be designed and the mooring equipment including lines should as far as reasonably practicable, be selected, in order to ensure occupational safety and safe mooring of the ship, based on guidelines developed in [reference \(c\)](#).
- .2 A towing and mooring arrangement plan should be provided and kept on board based on guidelines in [reference \(c\)](#) and section 5 of the annex to [reference \(f\)](#).
- .3 The plan should additionally include information on winch brake holding capacities and technical specifications of the mooring lines supplied with the ship. The manufacturers' recommended minimum diameter D of each fitting in contact with the mooring lines and the Line Design Break Force (LDBF) of the mooring lines should also be included in the plan(see [reference \(g\)](#)).
- .4 Mooring lines should be appropriately selected, taking into account the properties of mooring lines related to LDBF and bend radius (D/d ratio). A warning should be provided in the plan that the wear rate may be higher for lower diameter lines (see [reference \(g\)](#)).

1.1.5 Appropriate measures should be taken to mitigate any occupational risks arising from deviations in [references \(c\)](#), [\(d\)](#) and [\(f\)](#).

1.2 Ships constructed on or after 1 January 2007

1.2.1 Ships shall be provided with arrangements, equipment and fittings of sufficient safe working load to enable the safe conduct of all towing and mooring operations associated with the normal operation of the ship meeting the appropriate requirements in Guidance on Shipboard Towing and Mooring Equipment, [reference \(e\)](#) and guidelines [reference \(g\)](#).

1.2.2 Ships shall be provided with arrangements, equipment and fittings of sufficient safe working load to enable the safe conduct of all towing and mooring operations associated with the normal operation of the ship meeting the appropriate requirements in Guidance on Shipboard Towing and Mooring Equipment, [reference \(e\)](#) and guidelines in [reference \(g\)](#).

1.2.3 Each fitting or item of equipment provided under this regulation shall be clearly marked with any limitations associated with its safe operation, taking into account the strength of the supporting ship's structure and its attachment to it.

1.2.4 A towing and mooring arrangement plan shall be provided and kept on board based on guidelines in section 5 of the annex to [reference \(e\)](#) and guidelines in [reference \(g\)](#) . The plan should additionally include information on winch brake holding capacities and technical specifications of the mooring lines supplied with the ship. The manufacturers' recommended minimum diameter of each fitting in contact with the mooring lines and the Line Design Break Force (LDBF) of the mooring lines should also be included in the plan.

1.2.5 Mooring lines should be appropriately selected, taking into account the properties of mooring lines related to LDBF and bend radius (D/d ratio). A warning should be provided in the plan that the wear rate may be higher for lower diameter lines.

1.3 Ships constructed before, on or after 1 January 2007

- 1.3.1 Mooring equipment, including lines, shall be inspected and maintained in a suitable condition for their intended purposes taking into consideration Guidelines in [reference \(d\)](#) and [reference \(g\)](#).
- 1.3.2 Procedures for mooring operations, inspection and maintenance of mooring equipment, including mooring lines, should be established and available on board, taking into account industry practices in section 7 of [reference \(d\)](#).
- 1.3.3 Procedures to allow the identification and control of mooring lines, tails and associated attachments should be established and available on board.
- 1.3.4 The periodic inspection of mooring lines, mooring line tails and associated attachments should be included in the onboard maintenance plan or equivalent maintenance management system.
- 1.3.5 Manufacturers' criteria for replacement of mooring lines should be available on board.
- 1.3.6 Records of the original design concept, equipment, arrangements and specifications should be available on board. For ships the keels of which were laid before 1 January 2007 and without appropriate documentation, shipowners/operators may establish the MBL_{SD} for mooring lines based on the safe working load of mooring equipment provided on board. If no safe working load is specified, then owners are advised to check strength of mooring equipment and their supporting hull structure based on [reference \(f\)](#) and determine MBL_{SD} based on actual capacity of the equipment and their supporting hull structure on board.
- 1.3.6 Manufacturers' test certificates for mooring lines, joining shackles and synthetic tails should be kept on board and properly linked back to the equipment, if available.
- 1.3.7 Records of inspection and maintenance of mooring equipment and inspection and replacement of mooring lines should be kept updated and available on board.

1.4 Survey and Inspection

The provisions above will be confirmed by the surveyor of an authorized Recognized Organization at the initial survey for new ships or at the first annual survey for the issuance of the Cargo Ship Safety Construction Certificate or renewal survey for the issuance of the Passenger Ship Safety Certificate after 31 December 2023 for existing ships (see [reference \(g\)](#)).

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