

ABS REGULATORY NEWS

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AMENDMENTS TO SOLAS: SAFE MOORING OF SHIPS

This Regulatory News provides guidance on the amendments to SOLAS Regulation II-1/3-8 to enhance safe mooring operations.

BACKGROUND

As designs of new ships have been optimized for performance and their complexity increases, development of mooring systems has not adequately followed the development of ships. Despite major operational safety improvements of how mooring operations are planned, performed, and executed, a high number of accidents during these operations is still observed.

To alleviate this issue, [amendments to SOLAS Regulation II-1/3-8](#) were adopted by the Maritime Safety Committee at MSC.102 and will enter into force for ships constructed on or after 1 January 2024. These amendments introduced new requirements for mooring arrangements and equipment, including mooring lines, aiming to recognize the importance of the design of mooring arrangements and the selection of appropriate mooring equipment and fittings for safe mooring operations.

The changes to Regulation II-1/3-8 refer to an update to [MSC.1/Circ.1175/Rev.1](#) Revised Guidance on Shipboard Towing and Mooring Equipment and two new Guidelines:

- [MSC.1/Circ.1619](#) *Guidelines on the Design of Mooring Arrangements and the Selection of Appropriate Mooring Equipment and Fittings for Safe Mooring*, **will apply to ships constructed on or after 1 January 2024** and provides an approach to mooring arrangement design and the selection of mooring equipment and fittings that should be applied in conjunction with principles of ergonomics and usability
- [MSC.1/Circ.1620](#) *Guidelines for Inspection and Maintenance of Mooring Equipment Including Lines*, which provides guidance and recommendations for in-service inspections and maintenance of mooring equipment, including lines and tails, criteria for identifying worn-out lines and tails for removal from service before failure, and criteria for selection of replacement mooring lines and tails. **The guidelines in MSC.1/Circ. 1620 will apply to all ships. Vessels built before 2007 will need to have appropriate documentation detailing the determination of MBLSD. This documentation may be developed by the owner.**

For vessels constructed after the 1st January 2024 these requirements will be covered in Section 3-5-1 of the ABS Marine Vessel Rules.

KEY NOTES

Applicable Vessel Types:

Construction aspect:

Ships constructed on or after 1 January 2024

Maintenance aspect:

All ships in operation after 1 January 2024

References:

SOLAS Chapter II-1
Regulation 3-8

IMO Resolution
MSC.474(102)

IMO Circulars
MSC.1/Circ.1619
MSC.1/Circ.1620
MSC.1/Circ. 1175/Rev.1

APPLICATION

Summary

Construction aspect			
Ships constructed on or after 1 January 2024	Ships of 3,000 GT and above	SOLAS Reg. II-1/3-8 paragraph 7 <ul style="list-style-type: none"> - The mooring arrangement shall be designed, and the mooring equipment including lines shall be selected, to ensure occupational safety and safe mooring of the ship. - Ship-specific information shall be provided and kept on board. 	<ul style="list-style-type: none"> - MSC.1/Circ.1619 - MSC.1/Circ.1175/Rev.1
	Ships of less than 3,000 GT	SOLAS Reg. II-1/3-8 paragraph 8 <ul style="list-style-type: none"> - Should comply with the requirement of SOLAS Reg. II-1/3-8 paragraph 7, above as far as reasonably practicable - Or with applicable national standards of the Administration. 	<ul style="list-style-type: none"> - MSC.1/Circ.1619 - MSC.1/Circ.1175/Rev.1 - National standards of the Administration
Ships constructed on or after 1 January 2007	SOLAS Reg. II-1/3-8 paragraphs 4 to 6 <ul style="list-style-type: none"> - 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. - Arrangements, equipment, and fittings shall meet the appropriate requirements of the Administration, or an organization recognized by the Administration. - Each fitting or item of equipment shall be clearly marked with any limitations associated with its safe operation, considering the strength of the supporting ship's structure and its attachment to it. 		<ul style="list-style-type: none"> - MSC.1/Circ.1175
Inspection and maintenance regime			
All ships in operation after 1 January 2024 (<i>Retroactive</i>)	SOLAS Reg. II-1/3-8 paragraph 9 <ul style="list-style-type: none"> - Mooring equipment, including lines, shall be inspected, and maintained in a suitable condition for their intended purposes. 		<ul style="list-style-type: none"> - MSC.1/Circ.1620

A. New vessels – Ships constructed on or after 1 January 2024

Ships of less than 3,000 GT

While applying the requirements of SOLAS Reg II-1/3-8, the following requirements need to be verified as far as reasonably practicable or any applicable national standards of the Administration:

- I. A document shall be provided by the designer for information and as a supplement to the “Towing and mooring arrangement plan”, confirming that Circ.1619 has been considered. The document shall explicitly confirm if the deviations are unavoidable.
- II. Any deviations are to be recorded as per Circ. 1619 paragraph 6 as a supplement to the “Towing and Mooring Arrangement Plan”. Justification and suitable safety measures are to be provided in this supplement and a reference to the supplement is to be included on the “Towing and Mooring Arrangement Plan”.
- III. The mooring winch brake holding capacities shall be less than 100% of the MBLSD – Ref. Circ. 1619 paragraph 5.2.3.3 and 5.2.4. The winches are to be fitted with brakes that will allow for the reliable setting of the brake rendering load.

- IV. At delivery of the vessel, the attending ABS surveyor will confirm that the Towing and Mooring Arrangement Plan along with the supplement, if needed, describing deviations and suitable safety measures are provided on board

Ships of 3,000 GT and above

While applying the requirements of SOLAS Reg II-1/3-8, the following need to be verified:

- I. Towing and mooring arrangement plan is to be submitted to ABS for technical review. The winch brake holding capacities shall be included in addition to the information required by MSC.1/Circ.1175/Rev.1 paragraph 5 for the "Towing and Mooring Arrangement Plan".
- II. A technical specification document for the mooring lines supplied with the vessel shall be provided to ABS for information in support of the required technical review. The recommended minimum diameter of each fitting in contact with the mooring lines and the line design break force (LDBF) of the mooring lines shall be included in the document.
- III. At delivery of the vessel, the attending ABS surveyor will confirm that the Towing and Mooring Arrangement Plan is provided onboard the vessel.

B. Ships constructed before 1 January 2024

Ships keel laid date on or after 1st January 2007 and before 1 January 2024

- I. 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.
- II. Arrangements, equipment, and fittings shall meet the appropriate requirements of the Administration, or an organization recognized by the Administration.
- III. Each fitting or item of equipment shall be clearly marked with any limitations associated with its safe operation, considering the strength of the supporting ship's structure and its attachment to it.

Ships with keel laid date before 1st January 2007

- I. For vessels with appropriate documentation, records of the original design concept, equipment, arrangement, and specifications should be available onboard.
- II. For vessels without appropriate documentation, owners may establish the Ship Design Minimum Breaking Load (MBLSD) for mooring equipment and fittings based on the Safe Working Load of mooring equipment provided onboard. If no Safe Working Load is specified, then Owners are advised to check the strength of mooring equipment and their supporting structure based on IACS UR A2 and IACS Recommendation No.10 to determine the MBL_{SD} based on the actual capacity of the equipment and their supporting structure on board

C. All In-Service Ships

The following minimum requirements are to be complied with and compliance is to be confirmed by the attending surveyor **at the initial survey for new ships or the first annual survey for endorsement of the Cargo Ship Safety Construction Certificate or renewal survey for the issuance of the Passenger Ship Safety after 1 January 2024 for existing ships:**

- I. Procedures for mooring operations, inspection, and maintenance of mooring equipment, including mooring lines to be documented and available on board.
- II. Procedures to allow the identification and control of mooring lines, tails, and associated attachments when on board to be documented and available on board.
- III. The onboard maintenance plan or computer maintenance management system is to include the periodic inspection of mooring lines, mooring line tails and associated attachments.
- IV. The records of inspection and maintenance of mooring equipment and inspection and replacement of mooring lines, are kept updated and are available on board at least to the last periodic renewal survey.
- V. Manufacturers criteria for replacement of mooring lines are available (Ref. MSC.1/Circ.1620 paragraph 4.3.1).
- VI. Records of the original design concept, equipment, arrangement, and specifications are available on board.

- VII. Manufacturers test certificates for mooring lines, joining shackles and synthetic tails to be kept onboard and properly traceable back to the equipment.

ACTIONS FOR COMPLIANCE

Step 1: Prepare your new and existing vessels

- For new ships, confirm that they are constructed according to the forthcoming updated SOLAS 2024.
- For vessels built before 2007, some information related to the mooring arrangements, like the safe working load of each fitting, might not be available. In these instances, owners are to develop appropriate documentation for reference onboard.
- Companies should establish procedures for mooring operations, inspection, and maintenance of mooring equipment, including mooring lines.

Step 2: Submissions for Technical Review

- Towing and mooring arrangement plan along with the winch brake holding capacities
- Drawings accompanying hull support foundation of mooring fittings and winches
- Detail information of mooring fittings
- Technical specification document of the mooring lines
- Deviation, if any, with justification and suitable safety measures
- While review of this documentation is not necessary for vessels built before 01 January 2007, ABS will support such requests.

Step 3: Maintaining Compliance

- During the periodical Cargo or Passenger Ship Safety of Construction surveys, such as renewal and annual survey, the attending surveyor shall confirm that the records of inspection and maintenance of mooring equipment and inspection and replacement of mooring lines, since last periodical renewal and annual survey, are kept updated and are available on board.

REFERENCES

Document	Title
ASB Rules	Rules for Building and Classing Marine Vessels – 3-5-1 Anchoring, Mooring, and towing equipment
MSC. 474(102)	Amendments to the international convention for the Safety of Life at Sea, 1974, as amended
MSC.1/Circ.1619	Guidelines on the design of mooring arrangements and the selection of appropriate mooring equipment and fittings for safe mooring
MSC.1/Circ.1620	Guidelines for inspection and maintenance of mooring equipment including lines
MSC.1/Circ.1175/Rev.1	Guidance on shipboard towing and mooring equipment
IACS UR A1	Anchoring Equipment
IACS UR A2	Shipboard fittings and supporting hull structures associated with towing and mooring on conventional ships
IACS Rec. 10	Chain Anchoring, Mooring and Towing Equipment
ISO 2232	Round drawn wire for general purpose non-alloy steel wire ropes and for large diameter steel wire ropes - Specifications
ISO 3730	Shipbuilding and marine structures - Mooring winches
ISO 9554	Fibre ropes - General specifications
Nautical Institute Books	Mooring and Anchoring Ships Vol.1 & 2 - ISBN-10. 1870077938, ISBN-13. 978-1870077934

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