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THÔNG BÁO KỸ THUẬT TÀU BIỂN
TECHNICAL INFORMATION ON SEA-GOING SHIPS

Ngày 22 tháng 01 năm 2026
Số thông báo: 01TI/26TB

Nội dung: *Các yêu cầu về việc trang bị thiết bị đo độ nghiêng điện tử (Electronic Inclinometers) theo sửa đổi bổ sung Chương V/ SOLAS.*

Kính gửi:
- Các chủ tàu, Công ty quản lý tàu biển;
- Các đơn vị đăng kiểm tàu biển.

Tại kỳ họp thứ 107 của Ủy ban An toàn Hàng hải, các sửa đổi bổ sung đối với Chương V của Công ước SOLAS liên quan đến yêu cầu trang bị thiết bị đo độ nghiêng điện tử (Electronic Inclinometers) đã được thông qua bằng Nghị quyết MSC.532(107) với các nội dung chính như sau:

1. Nghị quyết MSC.532(107) sửa đổi Chương V của Công ước SOLAS có nội dung chính như sau:

1.1 Quy định 2: Định nghĩa

Bổ sung mục mới sau mục 7 hiện có:

8 Tàu chở hàng rời (Bulk carrier) là tàu chở hàng rời được định nghĩa tại Quy định XII/1.1.

9 Tàu chở container (Containership) là tàu chủ yếu dùng để chở container.

1.2 Quy định 19: Yêu cầu về trang bị đối với các hệ thống và thiết bị hàng hải:

Bổ sung mục 2.12 mới sau mục 2.11 hiện có:

"2.12 Tàu chở container và tàu chở hàng rời có tổng dung tích từ 3.000 trở lên, được đóng mới vào hoặc sau ngày 01 tháng 01 năm 2026, phải được trang bị thiết bị đo độ nghiêng điện tử (electronic inclinometer), hoặc các thiết bị khác, nhằm xác định, hiển thị và ghi lại chuyển động lắc ngang của tàu."

1.3 Phụ lục giấy chứng nhận

Danh mục trang thiết bị an toàn tàu hàng *(Record of Equipment for Cargo Ship Safety):*

Trong bảng 3 "Các hệ thống và thiết bị hàng hải", bổ sung mục 16 mới sau mục 15 hiện có (Form E và Form C) (Hệ thống cảnh báo ca trực buồng lái – Bridge Navigational Watch Alarm System (BNWAS)) như sau:

16 Thiết bị đo độ nghiêng điện tử (electronic inclinometer).

2. Phạm vi áp dụng

Đối với tàu chở container và tàu chở hàng rời có tổng dung tích từ 3.000 trở lên, được đóng mới vào hoặc sau ngày 01/01/2026, phải được trang bị thiết bị đo độ nghiêng điện tử (electronic inclinometer).

Đối với Tàu chở container và tàu chở hàng rời hiện có được đóng trước ngày 01/01/2026 được chấp nhận các thiết bị hiện đang sử dụng, tuy nhiên khi lắp đặt mới hoặc thay thế thì thiết bị phải áp dụng theo yêu cầu này.

3. Yêu cầu kỹ thuật

Các tiêu chuẩn chức năng đối với thiết bị đo độ nghiêng điện từ được quy định tại Nghị quyết MSC.363(92).

Thông báo kỹ thuật này được nêu trong mục: *Thông báo/ Thông báo kỹ thuật tàu biển* tại trang web của Cục ĐKVN: *http://www.vr.org.vn*.

Nếu Quý Đơn vị cần thêm thông tin, đề nghị liên hệ:

Cục Đăng kiểm Việt Nam

Trung tâm Đăng kiểm Phương tiện thủy và Công trình biển (VIRES)

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Trân trọng./.

Tài liệu gửi kèm:

1. *Nghị quyết MSC.532(107) thông qua ngày 08/06/2023 của Tổ chức Hàng hải quốc tế (IMO) về Bổ sung sửa đổi SOLAS.*
2. *Nghị quyết MSC.363(92) thông qua ngày 14/06/2013 của Tổ chức Hàng hải quốc tế (IMO) về Tiêu chuẩn chức năng đối với Thiết bị đo độ nghiêng điện tử.*

ANNEX 23

RESOLUTION MSC.363(92)
(Adopted on 14 June 2013)

PERFORMANCE STANDARDS FOR ELECTRONIC INCLINOMETERS

THE MARITIME SAFETY COMMITTEE,

RECALLING Article 28(b) of the Convention on the International Maritime Organization concerning the functions of the Committee,

RECALLING ALSO resolution A.886(21), by which the Assembly resolved that the function of adopting performance standards and technical specifications, as well as amendments thereto, shall be performed by the Maritime Safety Committee and/or the Marine Environment Protection Committee, as appropriate, on behalf of the Organization,

NOTING that in the *Revised Guidance to the master for avoiding dangerous situations in adverse weather and sea conditions* (MSC.1/Circ.1228), information about heel angle and roll period is regarded as relevant for assessment of the ship's stability situation in adverse weather and sea conditions,

NOTING ALSO that, at its ninetieth session, it had adopted resolution MSC.333(90) on *Revised Performance standards for shipborne voyage data recorders (VDRs)*,

NOTING FURTHER that, at its eighty-eighth session, instead of adding the requirement for an electronic inclinometer to the performance standards for VDRs, it had decided to develop dedicated performance standards for inclinometers,

RECOGNIZING the need to define minimum requirements for a heel angle and roll period measurement device to ensure that heeling information is provided in a reliable manner on board ships to be used by the crew to assess the dynamic situation of the ship and to be available for marine casualty investigation,

HAVING CONSIDERED, at its ninety-second session, the draft Performance standards for electronic inclinometers prepared by the Sub-Committee on Safety of Navigation, at its fifty-eighth session,

1. ADOPTS the Performance standards for electronic inclinometers, set out in the annex to the present resolution;

2. RECOMMENDS Governments ensure that electronic inclinometers installed on or after 1 July 2015, conform to performance standards not inferior to those specified in the annex to the present resolution.

ANNEX

PERFORMANCE STANDARDS FOR ELECTRONIC INCLINOMETERS

1 SCOPE

1.1 Electronic inclinometers are intended to support the decision-making process on board in order to avoid dangerous situations as well as assist in and facilitate maritime casualty investigations by providing information about the roll period and the heel angle of the ship.

1.2 Electronic inclinometers should, in a reliable form:

.1 determine the actual heel angle with the required accuracy;

.2 determine the roll amplitude with the required accuracy;

.3 determine the roll period with the required accuracy;

.4 present the information on a bridge display; and

.5 provide a standardized interface to instantaneous heel angle to the voyage data recorder (VDR).

2 APPLICATION OF THESE STANDARDS

2.1 These Performance standards should apply to all electronic inclinometers intended to support the decision-making process on board in order to avoid dangerous situations as well as to assist in maritime casualty investigations, if carried, on all ships[1].

2.2 In addition to the general requirements set out in the *General requirements for shipborne radio equipment forming part of the Global Maritime Distress and Safety System (GMDSS) and for electronic navigation aids* (resolution A.694(17)[2]) and the presentation requirements set out in the *Performance standards for the presentation of navigation-related information on shipborne navigational displays* (resolution MSC.191(79)), electronic inclinometers should meet the requirements of these standards and follow the relevant guidelines on ergonomic principles[3] adopted by the Organization.

3 DEFINITIONS

For the purpose of these Performance standards, the following definitions apply:

.1 *Rolling* is the motion around the longitudinal axis of the ship;

.2 *Actual heel angle* is the momentary angle of roll referenced to a levelled ship to port or starboard side;

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1 These Performance standards do not apply to electronic inclinometers installed for purposes which are outside the scope of these guidelines, e.g. monitoring of cargo status.

2 Refer to IEC Publication 60945 – Maritime navigation and radiocommunication equipment and systems – General requirements.

3 Refer to the *Guidelines on ergonomic criteria for bridge equipment and layout* (MSC/Circ.982).

.3 *Roll period* is the time between two successive maximum values of heel angle on the same side of the ship; and

.4 *Roll amplitude* is the maximum values of heel angle to port or starboard side.

MODULE A – SENSOR

4 MEASUREMENT OF ACTUAL HEEL ANGLE

Electronic inclinometers should be capable of measuring the actual heel angle and determining the amplitude of the rolling oscillation of the ship over a range of ± 90 degrees.

5 MEASUREMENT OF ROLL PERIOD

Electronic inclinometers should be capable of measuring the time between the maximum values of the rolling oscillation and determining the roll period over a minimum range of 4 to 40 s.

6 ACCURACY

6.1 Electronic inclinometers should provide the data with sufficient accuracy for a proper assessment of the ship's dynamic situation. Minimum accuracy of the measurements should be 5 per cent of reading or ± 1 degree, whichever is the greater for angle measurements and 5 per cent of reading or ± 1 s, whichever is the greater for time measurements.

6.2 Actual heel angle and time measurement accuracy should not be unduly affected by other linear or rotational movements of the ship (e.g. surging, swaying, heaving, pitching, yawing) or by transverse acceleration ranging from -0.8 g to +0.8 g.

MODULE B – OPERATIONAL AND FUNCTIONAL REQUIREMENTS

7 DISPLAY REQUIREMENTS

7.1 Electronic inclinometers should display:

.1 the roll period with a minimum resolution of 1 s; and

.2 the roll amplitude to both port and starboard side with a minimum resolution of 1 degree.

7.2 The actual heel angle to port or starboard should be indicated in an analogue form between the limits of ± 45 degrees.

7.3 The display may be implemented as a dedicated display or integrated into other bridge systems.

8 OPERATIONAL ALERTS

Electronic inclinometers may optionally provide a warning for indicating that a set heel angle had been exceeded.

9 PERFORMANCE TESTS, MALFUNCTIONS AND INDICATIONS

Electronic inclinometers should internally check and indicate to the user if all components are operative and if the information provided is valid or not.

MODULE C – INTERFACING AND INTEGRATION

10 CONNECTIONS TO OTHER EQUIPMENT

10.1 Electronic inclinometers should comprise a digital interface providing actual heel angle information to other systems like, e.g. VDR, with an update rate of at least 5 Hz. Electronic inclinometers should also comprise a digital interface providing the displayed information of roll period and roll amplitude (see paragraph 7.1).

10.2 Electronic inclinometers should have a bidirectional interface to facilitate communication, to transfer alerts from inclinometers to external systems and to acknowledge and silence alerts from external systems.

10.3 The digital interface should comply with the relevant international standards[4].

11 INSTALLATION POSITION

The installation position of the sensors of the electronic inclinometer should be recorded and made available for the configuration of the VDR.

12 POWER SUPPLY

Electronic inclinometers should be powered from the ship's main source of electrical energy. In addition, it should be possible to operate the electronic inclinometers from the ship's emergency source of electrical energy.

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[4] Refer to standard IEC 61162 – Maritime navigation and radiocommunication equipment and systems – Digital interfaces.

RESOLUTION MSC.532(107)
(adopted on 8 June 2023)

AMENDMENTS TO THE INTERNATIONAL CONVENTION FOR THE SAFETY OF LIFE AT SEA, 1974

THE MARITIME SAFETY COMMITTEE,

RECALLING Article 28(b) of the Convention on the International Maritime Organization concerning the functions of the Committee,

RECALLING ALSO article VIII(b) of the International Convention for the Safety of Life at Sea, 1974 ("the Convention"), concerning the amendment procedure applicable to the annex to the Convention, other than to the provisions of chapter I,

HAVING CONSIDERED, at its 107th session, amendments to the Convention proposed and circulated in accordance with article VIII(b)(i) of the Convention,

1 ADOPTS, in accordance with article VIII(b)(iv) of the Convention, amendments to the Convention, the text of which is set out in the annex to the present resolution;

2 DETERMINES, in accordance with article VIII(b)(vi)(2)(bb) of the Convention, that the said amendments shall be deemed to have been accepted on 1 July 2025, unless, prior to that date, more than one third of the Contracting Governments to the Convention or Contracting Governments the combined merchant fleets of which constitute not less than 50% of the gross tonnage of the world's merchant fleet have notified the Secretary-General of their objections to the amendments;

3 INVITES Contracting Governments to the Convention to note that, in accordance with article VIII(b)(vii)(2) of the Convention, the amendments shall enter into force on 1 January 2026 upon their acceptance in accordance with paragraph 2 above;

4 REQUESTS the Secretary-General, for the purposes of article VIII(b)(v) of the Convention, to transmit certified copies of the present resolution and the text of the amendments contained in the annex to all Contracting Governments to the Convention;

5 ALSO REQUESTS the Secretary-General to transmit copies of this resolution and its annex to Members of the Organization which are not Contracting Governments to the Convention.

ANNEX

AMENDMENTS TO THE INTERNATIONAL CONVENTION FOR THE SAFETY OF LIFE AT SEA, 1974

CHAPTER II-1
CONSTRUCTION – STRUCTURE, SUBDIVISION AND STABILITY, MACHINERY AND ELECTRICAL INSTALLATIONS

Part A
General

Regulation 2
Definitions

1 The following new paragraphs are added after existing paragraph 29:

"30 *Lifting appliance* means any load-handling ship's equipment:

.1 used for cargo loading, transfer or discharge;

.2 used for raising and lowering hold hatch covers or movable bulkheads;

.3 used as engine-room cranes;

.4 used as stores cranes;

.5 used as hose handling cranes;

.6 used for launch and recovery of tender boats and similar applications; and

.7 used as personnel handling cranes.

31 *Anchor handling winch* means any winch for the purpose of deploying, recovering and repositioning anchors and mooring lines in subsea operations.

32 *Loose gear* means an article of ships equipment by means of which a load can be attached to a lifting appliance or an anchor handling winch but which does not form an integral part of the appliance or load.

33 The expression *installed on or after 1 January 2026*, as provided in regulation 3-13, means:

.1 for ships the keel of which is laid or which is at a similar stage of construction on or after 1 January 2026, any installation date on the ship; or

.2 for ships other than those specified in .1, including those constructed before 1 January 2009, a contractual delivery date for lifting appliance or anchor handling winches, or in the absence of a contractual delivery date, the actual delivery date of the lifting appliance or anchor handling winches to the ship on or after 1 January 2026."

Part A-1
Structure of ships

2 The following new regulation is added after existing regulation II-1/3-12:

"**Regulation 3-13**
Lifting appliances and anchor handling winches

1 Application

1.1 Unless expressly provided otherwise, this regulation shall apply to lifting appliances and anchor handling winches, and loose gear utilized with the lifting appliances and the anchor handling winches.

1.2 Notwithstanding the above, this regulation does not apply to:

.1 lifting appliances on ships certified as MODUs;

.2 lifting appliances used on offshore construction ships, such as pipe/cable laying/repair or offshore installation vessels, including ships for decommissioning work, which comply with standards acceptable to the Administration;

.3 integrated mechanical equipment for opening and closing hold hatch covers; and

.4 life-saving launching appliances complying with the International Life-Saving Appliance (LSA) Code.

1.3 The Administration shall determine to what extent the provisions of paragraphs 2.1 and 2.4 do not apply to lifting appliances which have a safe working load below 1,000 kg.

2 Design, construction and installation

2.1 Lifting appliances installed on or after 1 January 2026 shall be:

.1 designed, constructed and installed in accordance with the requirements of a classification society which is recognized by the Administration in accordance with the provisions of regulation XI-1/1 or standards acceptable to the Administration which provide an equivalent level of safety; and

.2 load tested and thoroughly examined after installation and before being taken into use for the first time and after repairs, modifications or alterations of major character.

2.2 Anchor handling winches installed on or after 1 January 2026 shall be designed, constructed, installed and tested to the satisfaction of the Administration, based on the Guidelines developed by the Organization.

2.3 Lifting appliances installed on or after 1 January 2026 shall be permanently marked and provided with documentary evidence for the safe working load (SWL).

2.4 Lifting appliances installed before 1 January 2026 shall be tested and thoroughly examined, based on the Guidelines developed by the Organization and comply with paragraph 2.3 no later than the date of the first renewal survey on or after 1 January 2026.

2.5 Anchor handling winches installed before 1 January 2026 shall be tested and thoroughly examined, based on the Guidelines developed by the Organization no later than the date of the first renewal survey on or after 1 January 2026.

3 Maintenance, operation, inspection and testing

All lifting appliances and anchor handling winches, regardless of installation date, and all loose gear utilized with any lifting appliances and anchor handling winches, shall be operationally tested, thoroughly examined, inspected, operated and maintained, based on the Guidelines developed by the Organization.

4 Inoperative lifting appliances and anchor handling winches

Except as provided in regulation I/11(c), while all reasonable steps shall be taken to maintain lifting appliances, anchor handling winches and loose gear to which this regulation applies in working order, malfunctions of that equipment shall not be assumed as making the ship unseaworthy or as a reason for delaying the ship in ports, provided that action has been taken by the master to take the inoperative lifting appliance or anchor handling winch into account in planning and executing a safe voyage."

CHAPTER II-2
CONSTRUCTION – FIRE PROTECTION, FIRE DETECTION AND FIRE EXTINCTION

Part A
General

Regulation 1
Application

2 Applicable requirements to existing ships

3 The following new paragraph 2.10 is added after existing paragraph 2.9:

"2.10 All ships constructed before 1 January 2026 shall comply with regulation 10.11.2, as adopted by resolution MSC.532(107), not later than the date of the first survey on or after 1 January 2026."

Part C
Suppression of fire

Regulation 10
Fire fighting

4 The following new paragraph 11 is added after existing section 10:

"**11 Fire-extinguishing media restrictions**

The purpose of this paragraph is to protect persons on board against exposure to dangerous substances used in fire fighting, as well as to minimize the impact of fire-extinguishing media that are deemed detrimental to the environment.

11.1 Application

This paragraph applies to ships constructed on or after 1 January 2026.

11.2 General

11.2.1 The prohibited substances in this paragraph shall be delivered to appropriate shore-based reception facilities when removed from the ship.

11.2.2 Use or storage of extinguishing media containing perfluorooctane sulfonic acid (PFOS) shall be prohibited."

CHAPTER V
SAFETY OF NAVIGATION

Regulation 2
Definitions

5 The following new paragraphs are added after existing paragraph 7:

"8 *Bulk carrier* means a bulk carrier as defined in regulation XII/1.1.

9 *Containership* means a ship which is intended primarily to carry containers."

Regulation 19
Carriage requirements for shipborne navigational systems and equipment

6 The following new paragraph 2.12 is added after existing paragraph 2.11:

"2.12 Containerships and bulk carriers of 3,000 gross tonnage and upwards constructed on or after 1 January 2026 shall be fitted with an electronic inclinometer, or other means, to determine, display and record the ship's roll motion."

CHAPTER XIV
SAFETY MEASURES FOR SHIPS OPERATING IN POLAR WATERS

Regulation 2
Application

7 Regulation 2 is replaced by the following:

"**Regulation 2**
Application

1 Unless expressly provided otherwise, this chapter applies to the following ships operating in polar waters:

.1 ships certified in accordance with chapter I;

.2 fishing vessels of 24 metres in length overall and above;

.3 pleasure yachts of 300 gross tonnage and upwards not engaged in trade; and

.4 cargo ships of 300 gross tonnage and upwards but below 500 gross tonnage.

2 Ships subject to paragraph 1.1 constructed before 1 January 2017 shall meet the relevant requirements of the Polar Code by the first intermediate or renewal survey, whichever occurs first, after 1 January 2018.

3 Ships subject to paragraphs 1.2, 1.3 or 1.4 constructed before 1 January 2026 shall meet the relevant requirements of chapters 9-1 and 11-1 in part I-A of the Polar Code by 1 January 2027.

4 In applying part I-A of the Polar Code, consideration should be given to the additional guidance in part I-B of the Polar Code.

5 This chapter shall not apply to ships owned or operated by a Contracting Government and used, for the time being, only in government non-commercial service. However, ships owned or operated by a Contracting Government and used, for the time being, only in government non-commercial service are encouraged to act in a manner consistent, so far as reasonable and practicable, with this chapter.

6 Nothing in this chapter shall prejudice the rights or obligations of States under international law."

Regulation 3
Requirements for ships to which this chapter applies

8 Regulation 3 is replaced by the following:

"**Regulation 3**
Requirements for ships certified in accordance with chapter I

1 Ships subject to regulation 2.1.1 above shall comply with the requirements of the safety-related provision of the introduction and with part I-A of the Polar Code and shall, in addition to the requirements of regulations I/7, I/8, I/9 and I/10, as applicable, be surveyed and certified, as provided for in that Code.

2 Ships subject to regulation 2.1.1 above holding a certificate issued pursuant to the provisions of paragraph 1 shall be subject to the control established in regulations I/19 and XI-1/4. For this purpose, such certificates shall be treated as a certificate issued under regulation I/12 or I/13."

9 The following new regulation is inserted after existing regulation 3:

"**Regulation 3-1**
Requirements for fishing vessels of 24 metres in length overall and above, pleasure yachts of 300 gross tonnage and upwards not engaged in trade and cargo ships of 300 gross tonnage and upwards but below 500 gross tonnage

1 Ships subject to regulations 2.1.2, 2.1.3 or 2.1.4 on all voyages in the Antarctic area and voyages in Arctic waters beyond the outer limit of the territorial sea of the Contracting Government whose flag the ship is entitled to fly shall comply with the provisions of chapters 9-1 and 11-1 of part I-A of the Polar Code, taking into account the introduction and the safety-related provisions of paragraphs 1.2, 1.4 and 1.5 of chapter 1 of part I-A of the Polar Code.

2 Notwithstanding paragraph 1 above, the Administration shall determine to what extent the provisions of regulations 9-1.3.1 and 9-1.3.2 of chapter 9-1 of part I-A of the Polar Code do not apply to:

.1 fishing vessels of 24 metres in length overall and above; and

.2 ships of 300 gross tonnage and upwards but below 500 gross tonnage not engaged in international voyages."

APPENDIX

CERTIFICATES

Record of equipment for passenger ship safety (Form P)

2 Details of life-saving appliances

10 In the table for "Details of life-saving appliances", entries 10 to 10.2 are replaced by the following:

10	Number of immersion suits

Form of Safety Equipment Certificate for Cargo Ships

Cargo Ship Safety Equipment Certificate

Type of ship

11 The following new entry is added after "Gas carrier":

"Containership"

Record of equipment for cargo ship safety (Form E)

2 Details of life-saving appliances

12 In the table for "Details of life-saving appliances", entries 9 to 9.2 are replaced by the following:

9	Number of immersion suits

3 Details of navigational systems and equipment

13 In the table for "Details of navigational systems and equipment", the following new entry is added after existing entry 15 (Bridge navigational watch alarm system (BNWAS)):

"16 Electronic inclinometer"

Form of Safety Certificate for Nuclear Cargo Ships

Nuclear Cargo Ship Safety Certificate

Type of Ship

14 The following new entry is added after "Gas carrier":

"Containership"

Record of equipment for cargo ship safety (Form C)

2 Details of life-saving appliances

15 In the table for "Details of life-saving appliances", entries 9 to 9.2 are replaced by the following:

9	Number of immersion suits

5 Details of navigational systems and equipment

16 In the table for "Details of navigational systems and equipment", the following new entry is added after existing entry 15 (Bridge navigational watch alarm system (BNWAS)):

"16 Electronic inclinometer"