SLOVENSKI STANDARD
SIST EN ISO 11606:2002

01-januar-2002

Ships and marine technology - Marine electromagnetic compasses (ISO 11606:2000)

Ships and marine technology - Marine electromagnetic compasses (ISO 11606:2000)

Schiffe und Meerestechnik - Elektromagnetische Kompasse für Schiffe (ISO 11606:2000)

Navires et technologie maritime - Compas électromagnétiques de marine (ISO 11606:2000)

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Ships and marine technology - Marine electromagnetic compasses (ISO 11606:2000)

Navires et technologie maritime - Compas électromagnétiques de marine (ISO 11606:2000)

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This European Standard was approved by CEN on 23 June 2001.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Management Centre or to any CEN member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the Management Centre has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

Management Centre: rue de Stassart, 36 B-1050 Brussels

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Foreword

The text of the International Standard from Technical Committee ISO/TC 8 "Ships and marine technology" of the International Organization for Standardization (ISO) has been taken over as an European Standard by Technical Committee CEN/TC 300 "Sea-going vessels and marine technology", the secretariat of which is held by DIN.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by February 2002, and conflicting national standards shall be withdrawn at the latest by February 2002.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.

NOTE FROM CMC: The foreword is susceptible to be amended on reception of the German language version. The confirmed or amended foreword, and when appropriate, the normative annex ZA for the references to international publications with their relevant European publications will be circulated with the German version.

Endorsement notice

The text of the International Standard ISO 11606:2000 has been approved by CEN as a European Standard without any modification.

INTERNATIONAL STANDARD

ISO 11606

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2000-08-15

Ships and marine technology — Marine electromagnetic compasses

Navires et technologie maritime — Compas électromagnétiques de marine

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 3.

Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

Attention is drawn to the possibility that some of the elements of this International Standard may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

International Standard ISO 11606 was prepared by Technical Committee ISO/TC 8, *Ships and marine technology*, Subcommittee SC 6, *Navigation*.

This second edition cancels and replaces the first edition (ISO 11606:1997), which has been technically revised.

Annex A of this International Standard is for information only.

Ships and marine technology — Marine electromagnetic compasses

1 Scope

This International Standard specifies general requirements, type tests and individual tests for marine electromagnetic compasses intended for steering purposes and/or taking bearings on board ships required by Chapter V of SOLAS, 1974 and the International Code of Safety for High-Speed Craft (HSC Code). The magnetic compasses specified in this standard shall apply to the ships the overall length of which is normally not less than 24 m. In this context an electromagnetic compass is an item of electronic equipment which uses the geomagnetic field to obtain information about the ship's heading. This information is conveyed to the main compass (which is used for steering and taking bearings), to additional repeater indicators and, if required, to other navigational equipment.

NOTE All requirements that are extracted from the recommendations of IMO resolutions are printed in italics.

2 Normative references

The following normative documents contain provisions which, through reference in this text, constitute provisions of this International Standard. For dated references, subsequent amendments to, or revisions of, any of these publications do not apply. However, parties to agreements based on this International Standard are encouraged to investigate the possibility of applying the most recent editions of the normative documents indicated below. For undated references, the latest edition of the normative document referred to applies. Members of ISO and IEC maintain registers of currently valid International Standards.

ISO 449:1997, *Ships and marine technology — Magnetic compasses, binnacles and azimuth reading devices — Class A*.

ISO 1069, *Magnetic compasses and binnacles for sea navigation — Vocabulary*.

IEC 60945, *Marine navigation and radiocommunication equipment and systems — General requirements — Methods of testing and required test results*.

IEC 61162 (both parts), *Maritime navigation and radiocommunication equipment and systems — Digital interfaces*.

IMO Resolution A.694(17), *General requirements for shipborne radio equipment forming part of the global maritime distress and safety system (GMDSS) and for electronic navigational aids*.

IMO Resolution A.813(19), *General requirements for electromagnetic compatibility (EMC) for all electrical and electronic ship's equipment*.

IMO Resolution MSC.86(70), Annex 2, *Recommendation on performance standards for marine transmitting magnetic heading devices (TMHD's)*.

3 Terms and definitions

For the purposes of this International Standard, the definitions given in ISO 1069 and the following terms and definitions apply.

3.1
magnetic sensor
sensor which detects the geomagnetic field and supplies an appropriate output concerning direction to the processor

3.2
processor
device which processes the output of the magnetic sensor and provides the ship's magnetic heading and/or true heading

3.3
main compass
display unit which shows the output of the processor with a compass card or an electronic image of a compass card

3.4
repeater indicator
additional indicator which may be equipped with a display which uses a different type of compass card

4 Composition

The electromagnetic compass system shall consist of a magnetic sensor, a processor, a main compass display and facilities for other repeater indicators and equipment.

5 Construction and material

5.1 Requirements

Electromagnetic compasses shall fulfil the following requirements.

5.2 Electrical wiring

Electrical wiring, such as that for the direct-current power supply and that for connecting the units, shall not produce any perceptible errors in the heading information.

NOTE Twist cables are recommended for this purpose.

5.3 Non-magnetic housing

The housing of the magnetic sensor system shall be non-magnetic.

5.4 Fore-and-aft marks

Fore-and-aft marks shall be inscribed on the housing of the magnetic sensor system and the bottom part of the binnacle of the main compass. The units shall be installed on the fore-and-aft line of the ship.

The fore-and-aft marks shall be within ± 0,5° of the fore-and-aft axis of the unit.

5.5 Graduation

5.5.1 Graduation of main compass card

The main compass shall be of the compass card type which shall be graduated in 360 single degrees, starting from North (000°), in the clockwise direction as viewed from above. Each tenth degree shall be marked with the three corresponding numbers. The accuracy of the graduation shall be better than 0,2° on any heading. The cardinal points shall be indicated by the capital letters N, S, E and W; the intermediate points may also be marked.

Alternatively, the North point may be indicated by a suitable symbol.

5.5.2 Indication of the repeater indicator

The graduation of the indicator, if of the card type, shall be the same as that of the main compass card. If a repeater indicator is used for steering purposes, it shall be of the card type.

In the case of numerical displays, three-digit numbers, in degrees, shall be shown.

5.5.3 Centre of the graduation

The main compass, and repeater indicators to be used for bearing purposes, shall be fitted with a seat for a shadow pin which accommodates bearings or, if no seat is provided, the centre of the graduation shall be clearly indicated.

5.5.4 Graduation of the verge ring

The main compass, and repeater indicators to be used for bearing purposes, shall be provided with a verge ring, which is graduated in degrees, for the measurement of bearings relative to the ship's head. The scale shall be graduated in 360 single degrees in the clockwise direction as viewed from above.

Both the zero mark indicating the bearing of the ship's head and the 180° mark indicating the bearing of the ship's stern shall be within ± 0,5° of the fore-and-aft marks.

5.5.5 Accuracy of fore-and-aft marks

The fore-and-aft marks of the main compass, and of repeater indicators to be used for bearing purposes, shall be in the vertical plane passing through the centre of the compass card and the main lubber mark to within ± 0,5°.

5.5.6 Readability of the graduation

It shall be possible for a person with normal vision to read the main compass card and the indication of the repeater indicator at a distance of 1,0 m, both in daylight and in artificial light.

5.5.7 Horizontal position of the compass plane

The plane of the compass card of the main compass, and of repeater indicators to be used for bearing purposes, shall be so balanced that it is horizontal to within ± 2°.

5.6 Lubber marks

5.6.1 General

The main compass display and all repeater indicators shall be fitted with at least one lubber mark, indicating the direction of the ship's head. Additional lubber marks indicating the direction of the ship's stem and thwartships are permissible.

The width of the lubber mark shall not be greater than 0,5° on the card or 0,5 mm, whichever is smaller.

The distance between the lubber mark and the outer edge of the card shall not be more than 1,5 mm.

5.6.2 Accuracy

The main lubber mark shall be within ± 0,5° of the 0° to 180° line of the verge ring.

Additional lubber marks shall be within ± 1°.