INTERNATIONAL STANDARD

ISO 22090-1

Second edition
2014-03-01

Ships and marine technology — Transmitting heading devices (THDs) —

Part 1: Gyro-compasses

Navires et technologie maritime — Dispositifs de pilotage à transmission de données —

Partie 1: Compas gyroscopiques

Reference number
ISO 22090-1:2014(E)

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Published in Switzerland

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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.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the WTO principles in the Technical Barriers to Trade (TBT) see the following URL: Foreword - Supplementary information

The committee responsible for this document is ISO/TC 8, *Ships and marine technology*, Subcommittee SC 6, *Navigation and ship operations*.

This second edition cancels and replaces the first edition (ISO 22090-1:2002), of which has been technically revised. It also replaces ISO 22090-1:2002/Cor1:2005.

ISO 22090 consists of the following parts, under the general title *Ships and marine technology — Transmitting heading devices (THDs)*:

— *Part 1: Gyro-compasses*

— *Part 2: Geomagnetic principles*

— *Part 3: GNSS principles*

Annex A of this part of ISO 22090 is for information only.

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Ships and marine technology — Transmitting heading devices (THDs) —

Part 1: Gyro-compasses

1 Scope

This part of ISO 22090 specifies the construction, performance, and testing of gyro-compasses as transmitting heading device required by chapter V, SOLAS 1974 (as amended).

A Transmitting heading device (THD) is an electronic device that *provides information about the ship's true heading*.

In addition to the general requirements contained in IMO *Resolution A.694(17)* to which IEC 60945 is associated *and the relevant standard for the sensing part used, the THD equipment* shall *comply with the following minimum requirements*.

Where the IMO performance standards that *apply to the sensing part do not specify a geographical operating area that the THD* shall *operate*

a) at maximum rate of turn 20 °/s and

b) *from 70° latitude south to 70° latitude north as minimum*.

The THDs complying with the requirements contained in this part of ISO 22090 *can be used for heading information as contained in chapter V of the SOLAS Convention*.

However, ships within a speed range of 30 kn to 70 kn should comply with the requirements of IMO Resolution A.821(19).

In addition, such THD should meet the dynamic requirements contained in the HSC Code, chapter 13 for the carriage of a suitable device providing heading information.

NOTE 1 Several technologies can be used to detect and transmit heading information. It is illogical to standardize the detection of the heading separately from the transmission of the heading. Therefore, separate parts of this part of ISO 22090 refer to different technologies. The requirements of this part of ISO 22090 only apply to gyroscopic technology. Other technologies are covered in other parts of ISO 22090.

NOTE 2 All requirements that are extracted from the recommendations of IMO Resolution MSC. 116(73) on performance standards for transmitting heading devices are printed in italics.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 25862, *Ships and marine technology — Marine magnetic compasses, binnacles and azimuth reading devices*

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

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IEC 61162-1, *Maritime navigation and radiocommunication equipment and systems — Digital interfaces — Part 1: Single talker and multiple listeners*

IEC 61162-2, *Maritime navigation and radiocommunication equipment and systems — Digital interfaces — Part 2: Single talker and multiple listeners, high-speed transmission*

IEC 61924-2, *Maritime navigation and radiocommunication equipment and systems — Inegrated Navigation Systems (INS) — Part 2: Modular structure for INS — Operational and performance requirements, methods of testing and required test results*

IMO Resolution MSC.116(73), *Performance standards for marine transmitting heading devices (THDs)*

IMO Resolution MSC.252(83), *Adoption of the revised performance standards for integrated navigation system (INS)*

IMO Resolution MSC.302(87), *Adoption of performance standards for bridge alert management*

IMO Resolution A.424(XI), *Performance standards for gyro-compasses*

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 A.821(19), *Performance standards for gyro-compasses for high-speed craft*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

3.1
gyro-compass
complete equipment including all essential elements of the complete design including both the gyro-compass as heading sensor and the associated heading transmission system

3.2
heading
ship's heading to be input to the THD function

Note 1 to entry: It is defined by the direction of the vertical projection of the fore-and-aft line of the ship onto the horizontal plane. When measured relative to the true north, magnetic north, or compass north, it is respectively defined as true heading, magnetic heading, or compass heading, and is usually expressed in degrees as a three-figure group, starting from north, in a clockwise direction around the compass card.

3.3
sensing part
sensing function of detecting any heading information connected to the transmitting part

3.4
transmitting part
device which receives heading information from the sensing part and converts this *to the required accurate signal*

3.5
true heading
horizontal angle between the vertical plane passing through the true meridian and the vertical plane passing through the craft's fore and aft datum line, measured from true north (000°) clockwise through 360°

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