

British Standard Marine Series

Magnetic compasses and binnacles

Part 8. Specification for transmitting systems and off-course alarms
for class A magnetic compasses

Série maritime. Compas magnétiques et leurs habitacles
Partie 8. Systèmes de transmission et alarmes automatiques des compas magnétiques
de classe A — Spécifications

Marinenserie. Magnetische Kompass und Kompaßgehäuse
Teil 8. Kurssteueranlagen und Kursabweichungssignale für Magnetkompass der Klasse A

Foreword

This Part of BS MA 2 has been prepared under the direction of the Shipbuilding and Marine Standards Committee. It forms Part 8 of the series and deals with transmitting systems and off-course alarms for class A magnetic compasses.

Compliance with a British Standard does not of itself confer immunity from legal obligations.

1 Scope

This Part of BS MA 2 specifies performance requirements for transmitting systems and off-course alarms, attached to a class A magnetic compass, intended to transmit heading information to equipment in other parts of the vessel.

It is applicable only to the transmission of heading information from a direct reading class A magnetic compass.

NOTE. The titles of the publications referred to in this standard are listed on the inside back page.

2 Definitions

For the purposes of this Part of BS MA 2, the definitions given in BS MA 2 : Part 4 apply.

3 Accuracy

3.1 Transmitting system

3.1.1 Whether the transmitting system is energized or not, it shall be such that the performance of the magnetic compass remains in compliance with the requirements of BS MA 2 : Part 1.

3.1.2 The heading information from the transmitting system shall agree with that indicated by the compass card to within 1° on all headings and at all repeaters. This accuracy shall be achieved in any latitude with heel or pitch up to 15° .

3.1.3 The follow-up rate of the transmitting system shall be not less than $6^\circ/\text{s}$.

3.1.4 The information from the master compass shall be relayed in steps not greater than $20'$ of arc.

3.2 Compatibility with function of a standard compass

The transmitting system shall not interfere with the reading of the card, whether read directly or by the reflected or projected image, or by the use of a bearing instrument mounted on the compass bowl. It shall not interfere with the specified freedom and movement of the compass bowl and gimbals.

3.3 Corrector effect

Any effect of the correctors fitted to the binnacle on the transmitting system shall be contained within the error specified in **3.1.2**.

3.4 Readability

If a steering repeater is provided, it shall comply with the readability requirements for steering compasses specified in 2.7.1.2.1 of BS MA 2 : Part 1 : 1985.

4 Robustness of construction

The sensor system and mounting shall withstand the weight of the compass without affecting the function and accuracy of the transmitting system.

5 Internal transmitting element construction

Any transmitting element placed within the compass liquid shall be constructed of material such that the liquid remains clear and free from contamination that prevents the compass from complying with the performance requirements of this standard or causes corrosion. If the transmitting element consists of an internal resistance bridge, any conductive matter added to the compass liquid shall be such that the liquid (electrolyte) remains clear over the full temperature range of -30°C to $+60^{\circ}\text{C}$ and contains no corrosive elements.

6 Electromagnetic compatibility

The transmitting system shall comply with clause 3 and clause 7 when operating in the shipboard radio frequency environment.

NOTE. It is essential that the transmitting system should not cause interference detrimental to other equipment installed in the ship.

7 Off-course alarms

7.1 If a transmitting system is used to operate an off-course alarm, the requirements of 7.2 to 7.7 shall apply.

7.2 The angle of yaw at which the alarm becomes activated shall be variable between 4° and 20° . Adjustment of this angle between these limits shall either be continuous or in steps not greater than 2° for angles up to and including 8° and in steps not greater than 4° for angles between 8° and 20° .

7.3 The alarm shall be activated at angles of yaw within 1° of the prescribed setting for settings up to and including 8° and within 2° for settings in excess of 8° .

7.4 The alarm shall be activated within a time of 30 s from the ship's change of heading reaching the prescribed limit.

7.5 An audible and visual alarm shall be fitted near the steering position and shall be capable of being linked to a central alarm system.

7.6 A self-test facility which does not require a change in the ship's heading shall be incorporated into the system.

7.7 When the off-course alarm is connected to a compass which operates other systems, e.g. auto-pilots, a fault developing in any other such system shall not disturb the effectiveness of the off-course alarm.

8 Power supplies

The master repeater and off-course alarm, if fitted, shall operate from both main and emergency power supplies, with automatic change-over.