

British Standard Marine Series

Magnetic compasses and binnacles

Part 1. Specification for class A magnetic compasses, their binnacles and azimuth reading devices (including test procedures)

Série maritime. Compas magnétiques et leurs habitacles

Partie 1. Compas magnétiques, habitacles et alidades de classe A — Spécifications et méthodes d'essai

Marinenserie. Magnetische Kompass und Kompaßgehäuse

Teil 1. Magnetkompass der Klasse A, deren Gehäuse und Peilvorrichtungen (einschließlich Prüfverfahren)

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Foreword

This revision of BS MA 2 : Part 1, having been prepared under the direction of the Shipbuilding and Marine Industry Standards Committee, supersedes BS MA 2 : Part 1 : 1969 and BS MA 2 : Parts 5, 6 and 7 (all published in 1972), which are withdrawn.

This Part specifies requirements and describes test procedures for class A magnetic compasses and their binnacles and azimuth reading devices. During its preparation account has been taken of ISO 2269.

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

Section one. General

1.1 Scope

This Part of BS MA 2 specifies requirements for class A magnetic compasses, their binnacles and azimuth reading devices.

NOTE. The title of the publication referred to in this standard is given on the inside back page.

1.2 Definitions

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

1.3 Test certificates

1.3.1 Type testing shall be carried out before the instruments specified enter regular service. All tests, except those identified as type tests only, apply to individual testing.

New devices only are accepted by type testing. All compasses other than those compasses, without gimbals, which are used as steering compasses only, are to be tested complete with their gimbal rings and outer gimbal bearings.

1.3.2 Devices that have passed type or individual tests and comply with the requirements shall be so certified.

1.3.3 Each type test certificate is valid exclusively for the model tested. In case of alterations or technical improvements, which affect its compliance with this Part of BS MA 2, the model shall be given a new identification number or mark and the type test repeated. All alterations shall be submitted to the original test authority who will decide whether a new type test is necessary (see appendices A, B and C).

1.3.4 Copies of the certificate shall be issued on demand; they shall be explicitly marked 'copy'.

Section two. Compasses, bowls and gimbals

2.1 General

2.1.1 Temperature conditions for testing

Testing shall be carried out on all class A magnetic compasses, with or without transmitting system, at a temperature of $20 \pm 3^\circ\text{C}$, except for the high and low temperature tests (see 2.2.2 and 2.2.3).

The order in which tests are carried out is at the discretion of the testing authority except that 2.2.1, 2.2.2 and 2.2.3 shall be performed first and in that order.

2.1.2 Manufacturer's statement

The manufacturer shall produce a written statement covering those requirements that cannot easily be ascertained during a type test (see appendix A).

The statement shall contain the following.

- (a) The coercivity and magnetic moment of the directional magnets.
- (b) An assertion that the paint inside the compass is of such a quality that over a period of 2 years it is not likely to deteriorate to such an extent as to make the compass unserviceable, either as a result of the change of temperature over the range of -30°C to $+60^\circ\text{C}$ or any other cause (for example the legibility of graduations shall not be impaired by discoloration or blistering).
- (c) An assertion under the conditions described in item (b), that the compass liquid will not show discoloration to an extent sufficient to render the compass unserviceable.
- (d) Whether toughened or non-toughened glass is used for the top and bottom glass covers and its thickness. Alternatively, when a material other than glass is used, that its strength is equivalent to that of non-toughened glass of 4.5 mm thickness.
- (e) An assertion that the material of the compass card will not distort.
- (f) An assertion that the moment of inertia of the directional system is the same about all horizontal axes passing through the bearing surface of the pivot jewel.
- (g) The vertical distance between the mid-plane of the magnets of the directional system and the inner gimbal axis of the compass supplied.
- (h) The supporting force on the pivot at 20°C .
- (i) An assertion that the inner and outer bearings of the gimbal rings are of the same type.
- (j) The length of the bar magnet or the diameter of the ring magnet forming the directional system.
- (k) The diameter of the compass card.

NOTE. In order to check that the manufacturer's statement in 2.1.2 has been fulfilled, sample checks may be carried out.

2.1.3 Marking

Compasses shall be marked with the following information which shall be similarly recorded on the test certificate.

- (a) The compass card and the verge shall be marked in a conspicuous place with the name of the manufacturer and the verge also marked with the type number.
- (b) The compass card, verge and gimbal ring shall be marked with the same serial number.
- (c) The type of liquid used shall be indicated on the bowl in the vicinity of the filling plug.

2.2 Construction and materials

2.2.1 Condition of compass bowl

The compass shall be inspected for damage and to ensure its sound mechanical condition. The liquid shall be colourless and free from turbidity and formation of flocks. There shall be no leaks. The paint, including that on the compass card, shall be free from cracks and blisters.