

CONFIRMED  
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Specification for

# Meteorological thermometers

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# Committees responsible for this British Standard

The preparation of this British Standard was entrusted by the Laboratory Apparatus Standards Policy Committee (LBC/-) to Technical Committee LBC/4, upon which the following bodies were represented:

- British Laboratory Ware Association
- British Medical Association
- Department of Health
- Department of Trade and Industry (National Physical Laboratory)
- Institute of Petroleum
- Medical Sterile Products Association
- Scientific Glassware Association

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# Contents

|                                                                                                                                                                                     | Page               |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|
| Committees responsible                                                                                                                                                              | Inside front cover |
| Foreword                                                                                                                                                                            | ii                 |
| 1 Scope                                                                                                                                                                             | 1                  |
| 2 Types                                                                                                                                                                             | 1                  |
| 3 Temperature scale                                                                                                                                                                 | 1                  |
| 4 Stem                                                                                                                                                                              | 1                  |
| 5 Bulb                                                                                                                                                                              | 1                  |
| 6 Annealing                                                                                                                                                                         | 1                  |
| 7 Stabilization                                                                                                                                                                     | 1                  |
| 8 Immersion                                                                                                                                                                         | 1                  |
| 9 Scale lines                                                                                                                                                                       | 1                  |
| 10 Figuring                                                                                                                                                                         | 1                  |
| 11 Construction                                                                                                                                                                     | 1                  |
| 12 Sheath                                                                                                                                                                           | 3                  |
| 13 Top finish                                                                                                                                                                       | 3                  |
| 14 Expansion chamber                                                                                                                                                                | 3                  |
| 15 Spirit filling                                                                                                                                                                   | 3                  |
| 16 Maximum and minimum thermometers: special provisions                                                                                                                             | 3                  |
| 17 Inscriptions                                                                                                                                                                     | 4                  |
| Appendix A Thermometric glasses approved by the National Physical Laboratory                                                                                                        | 5                  |
| Appendix B Testing of meteorological thermometers                                                                                                                                   | 5                  |
| Appendix C Method of test for the absence of amines in spirit filling                                                                                                               | 5                  |
| Appendix D Meteorological thermometers with a Fahrenheit scale                                                                                                                      | 6                  |
| Figure 1 — Suitable support for thermometers in a louvred screen                                                                                                                    | 7                  |
| Figure 2 — Typical graduation and figuring for British Standard Celsius meteorological thermometers                                                                                 | 8                  |
| Figure 3 — Details of button at top of ordinary thermometer                                                                                                                         | 8                  |
| Figure 4 — Details of clips on thermometer support                                                                                                                                  | 8                  |
| Table 1 — Dimensions for meteorological thermometers                                                                                                                                | 2                  |
| Table 2 — Ranges and tolerances for meteorological thermometers (Celsius scale)                                                                                                     | 2                  |
| Table 3 — Identification stripe(s) or approved abbreviations and normal maximum working temperature of all glasses that have been approved for the manufacture of thermometer bulbs | 5                  |
| Table 4 — Ranges and tolerances for meteorological thermometers (Fahrenheit scale)                                                                                                  | 6                  |
| Publications referred to                                                                                                                                                            | Inside back cover  |

## Foreword

This British Standard has been prepared under the direction of the Laboratory Apparatus Standards Policy Committee and supersedes BS 692:1976 which is withdrawn.

This British Standard was first published in 1936 and revisions were issued in 1951, 1958 and 1976. This revision introduces technical changes to bring the standard up to date and in particular changes to the availability of glasses and arrangements for calibration and testing.

This revision reflects the change to the Celsius scale for all Meteorological Office observations and all dimensions are given in metric units. Any continuing requirement for thermometers with a Fahrenheit scale is catered for in Appendix D.

*Product certification.* Users of this British Standard are advised to consider the desirability of third party certification of product conformity with this British Standard based on testing and continuing surveillance, which may be coupled with assessment of a supplier's quality systems against the appropriate Part of BS 5750.

Enquiries as to the availability of third party certification schemes will be forwarded by BSI to the Association of Certification Bodies. If a third party certification scheme does not already exist, users should consider approaching an appropriate body from the list of Association members.

A British Standard does not purport to include all the necessary provisions of a contract. Users of British Standards are responsible for their correct application.

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

### Summary of pages

This document comprises a front cover, an inside front cover, pages i and ii, pages 1 to 8, an inside back cover and a back cover.

This standard has been updated (see copyright date) and may have had amendments incorporated. This will be indicated in the amendment table on the inside front cover.

## 1 Scope

This British Standard range of meteorological thermometers comprises the following types. thermometers protected by glass sheaths and suitable for mounting in a louvred screen (see Figure 1).

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

## 2 Types

This British Standard range of meteorological thermometers comprises the following types.

- a) **Maximum.** Mercury-in-glass, graduated on the stem, with as high a vacuum as possible above the mercury.
- b) **Minimum.** Spirit-in-glass, graduated on the stem.
- c) **Ordinary** (i.e. wet or dry bulb). Mercury-in-glass (except for Ord. 4 which shall be spirit-in-glass), graduated on the stem.

## 3 Temperature scale

The temperature scale to which this specification refers is the Celsius scale as defined in the current definition of the International Practical Temperature Scale adopted by the General Conference of Weights and Measures (CGPM). The Fahrenheit scale values in this British Standard are derived from the Celsius scale.

## 4 Stem

The stem shall be of lead glass or other thermometric glass appropriate to the temperature range, with an enamel back.

## 5 Bulb

The bulb for ordinary thermometers shall be substantially spherical, with its centre approximately in alignment with the axis of the stem. The bulb for maximum and minimum thermometers shall be either spherical or cylindrical. The bulb shall be of the thermometric glass approved by the National Physical Laboratory (see Appendix A).

## 6 Annealing

Stress in the glass shall be reduced to a level sufficient to minimize the possibility of fracture due to mechanical or thermal shock.

## 7 Stabilization

The thermometer shall be stabilized before graduation using a process such that the maximum error and interval error of the finished thermometer are within the limits specified in Table 2.

## 8 Immersion

The thermometer shall be graduated for complete immersion.

## 9 Scale lines

The scale lines shall be clearly etched or otherwise durably marked at each 0.5 °C and shall be of uniform thickness not exceeding 0.15 mm. The lines shall lie in planes at right angles to the axis of the thermometer, and their left hand ends shall be on an imaginary line parallel with the axis of the thermometer. When the thermometer is held vertically so that the enamel back forms a suitable background to the scale lines and figuring, the long and medium lines shall extend to the right, but the shortest lines shall not extend across the bore.

## 10 Figuring

The thermometers shall be figured at each 5 °C in bold figures of uniform thickness.

The figures for ordinary thermometers shall be upright when the thermometer is held in a vertical position and viewed from the front and shall be placed so that each would be intersected by the line to which it refers if the line were extended. All negative figures shall have a minus sign placed above them.

The figures for maximum and minimum thermometers shall be upright when the thermometer is held in a horizontal position with the bulb to the left and viewed from the front, and shall be placed so that they would be bisected by the line to which they refer if the line were extended. All negative figures shall have a minus sign placed before them.

NOTE Figure 2 illustrates diagrammatically the graduation and figuring specified for typical thermometers.

All scale lines and figures shall be durably marked in black.

## 11 Construction

Each thermometer shall comply in all respects with the dimensions given in Table 1. The ranges and tolerances shall be in accordance with Table 2.