BRITISH STANDARD

BS 701:1953
Incorporating Amendment No. 1

CONFIRMED
DECEMBER 2007

Specification for

Brewers' mash flask

UDC 542.231.3:663.4.023

Co-operating organizations

The Scientific Glassware and Related Laboratory Apparatus Industry Standards Committee, under whose supervision this British Standard was prepared, consists of representatives from the following Government departments and scientific and industrial organizations:—

Admiralty*
Air Ministry
Association of British Chemical Manufacturers*
Association of Scientific Workers
Board of Trade
British Association for the Advancement of Science*
British Chemical Ware Manufacturers' Association*
British Laboratory Ware Association*
British Lampblown Scientific Glassware Manufacturers' Association*
British Pharmacopœia Commission
British Scientific Instrument Research Association*
Chemical Society
Department of the Government Chemist
D.S.I.R. — Chemical Research Laboratory
Glass Manufacturers' Federation*
Institute of Petroleum*
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National Physical Laboratory*
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Society of Public Analysts and Other Analytical Chemists*
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The Government departments and scientific and industrial organizations marked with an asterisk in the above list, together with the following, were directly represented on the committee entrusted with the preparation of this British Standard:—

Association of Hospital Management Committees
Guild of Public Pharmacists
High Commission of India
Metropolitan Water Board
University of London (Faculty of Science)
Individual manufacturers

This British Standard, having been approved by the Scientific Glassware and Related Laboratory Apparatus Industry Standards Committee and endorsed by the Chairman of the Chemical Divisional Council, was published under the authority of the General Council on 17 December 1953

First published November 1936
First revision December 1953

ISBN 0 580 34118 6

Amendments issued since publication

Amd. No.	Date of issue	Comments
4922	May 1963	Indicated by a sideline in the margin

Contents

Foreword

This standard makes reference to the following British Standard:—

BS 1797, *Tables for use in the calibration of volumetric glassware.*

This British Standard specifies a flask with graduation marks at 500 and 515 ml. suitable for the analysis of malts for the determination of brewers' extract in the brewing industry. It was first published in 1936, under the title "Brewers' flasks", and has now been revised and brought into line with other recent British Standards for volumetric glassware.

Tests have shown that the requirement in Clause **4** regarding stability on an inclined plane is readily satisfied by good quality flasks in current production; it has been suggested that after further consideration by the manufacturers it may be possible to increase the specified minimum angle of "topple" from 10° to 15°.

NOTE A standard temperature of 27 °C. may be used, for the purpose stated in Appendix C, in place of the temperature of 20 °C. mentioned in Clauses **2** and **8**, Appendix B and Figure 1.

In accordance with the recommendations of Technical Committee ISO/TC 48 — *Laboratory Glassware and Related Apparatus, of the International Organization for Standardization (ISO)*, use of the inscription "In" is now recommended in place of "C" to indicate that the flask is graduated "to contain". It is intended that this change shall become mandatory when a revised edition of the standard is published.

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Summary of pages

This document comprises a front cover, an inside front cover, pages i and ii, pages 1 to 3 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 specifies a flask suitable for certain requirements of the brewing industry, having two graduation marks on the neck corresponding to capacities of 500 and 515 ml.

2 Definition of capacity

The capacity corresponding to either graduation mark is defined as the volume of water at 20 °C., expressed in millilitres, contained by the flask at 20 °C. when filled to that graduation mark as described in Appendix B.

3 Material

The flask shall be made of clear glass, as free as possible from visible defects, and shall be well annealed.

4 Construction

The general shape of the flask shall be as shown in Figure 1. It shall stand vertically on its base without rocking and shall not topple when placed empty on a surface inclined at an angle of 10° to the horizontal.

The flange at the top of the neck shall be turned over sharply and the mouth shall not be belled to any considerable distance from the top of the neck.

The construction shall be sufficiently robust to withstand normal usage and the wall thickness shall show no gross departures from uniformity. The weight of the empty flask shall be not less than 125 g.

5 Dimensions

The flask shall conform to the dimensions specified in Table 1.

Table 1 — Dimensions of brewers' mash flask

Length of neck	maximum 170 mm.
Distance of higher graduation mark from top of neck	minimum 100 mm.
Distance between graduation marks	25 to 30 mm.
Length of cylindrical neck below lower graduation mark	minimum 15 mm.
Diameter of base	50 to 60 mm.

6 Graduation marks

The graduation marks shall be fine clean permanent lines of uniform thickness, completely encircling the neck of the flask and lying in planes parallel to the base.

The graduation marks shall be identified by the numbers 500 and 515 placed immediately above the lower and upper marks respectively.

7 Tolerances on capacity

The maximum permissible error at either graduation mark shall be ± 0.6 ml. and the maximum permissible difference between the errors at the two graduation marks shall also be 0.6 ml.

8 Inscriptions

Each flask shall have permanently and legibly marked on it:

a) The abbreviation "ml".

b) *Either* the inscription "In 20 °C" *or* the inscription "C20 °C" to indicate that the flask is graduated for content at 20 °C.

c) An identification number, if required.

d) The maker's or vendor's name or mark.

e) The number of this British Standard, i.e. "BS 701".[1)]

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Appendix A Testing of British Standard brewers' mash flasks

The National Physical Laboratory is prepared to accept brewers' mash flasks, marked with an identification number in accordance with Clause **8** c), for examination for compliance with the requirements of this British Standard. Certificates of values will be issued for satisfactory flasks if required. Particulars of the fees charged can be obtained on application to the Director, National Physical Laboratory, Teddington, Middlesex.

Appendix B Method for the determination of capacity

When determining the capacity of a flask the vessel shall first be thoroughly cleaned and dried. If hot air is used to speed up the process of drying, care shall be taken that the flask settles down to room temperature before testing.

The clean weighed flask shall then be filled with distilled water to a few millimetres above the graduation mark to be tested, care being taken to avoid wetting the neck of the flask above the water surface and also to avoid trapping any air bubbles on the walls of the flask. The lowest point of the water meniscus[2)] shall be adjusted to the top edge of the graduation mark to be tested by withdrawing small amounts of water by means of a glass tube drawn out to a jet at its lower end. The weight of the water in the flask shall then be determined.

All operations shall be carried out at room temperature. The volume of water contained by the flask at 20 °C. up to the graduation mark tested shall be calculated from the weight thus determined by applying a correction for water temperature and, where necessary, air temperature and pressure (see BS 1797[3)]).

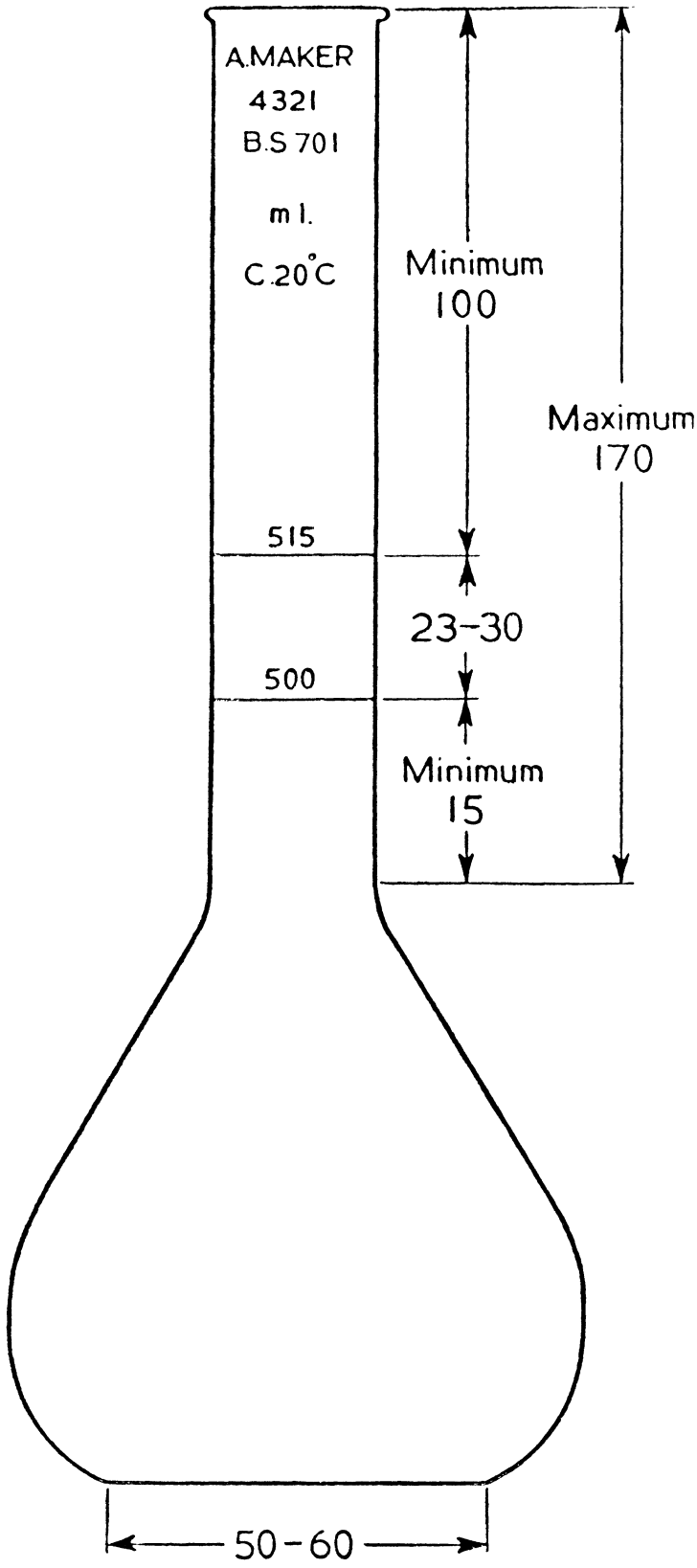
Appendix C Subsidiary standard temperature of 27 °C

At the Second Meeting, in 1951, of Technical Committee ISO/TC 48 — Laboratory Glassware and Related Apparatus, of the International Organization for Standardization, it was agreed to qualify as follows the acceptance of 20 °C. as the standard temperature for volumetric glassware:—

> "When it is necessary in tropical countries to work at an ambient temperature considerably above 20 °C. and these countries do not wish to use exclusively the standard temperature of 20 °C., it is recommended that they should adopt a temperature of 27 °C."
>
> *In order to meet the requirements of such tropical countries* it has been decided to permit 27 °C., as an alternative to 20 °C., in British Standards for volumetric glassware.

2) The meniscus can be clearly defined by folding a strip of black paper round the neck, the top edge of the paper being not more than 1 mm. below the graduation mark on which the setting is to be made. The meniscus, so shaded, is viewed against a white background.

3) BS 1797, "*Tables for use in the calibration of volumetric glassware*".



All dimensions are in millimetres.

Figure 1 — British Standard brewers' mash flask

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