

Specification for narrow-necked boiling flasks

ICS 71.040.20

National foreword

This British Standard has been prepared by Technical Committee LBI/36 *Laboratory glassware and related apparatus*. It is identical with ISO 1773:1997 *Laboratory glassware — Narrow-necked boiling flasks* published by the International Organization for Standardization (ISO).

The UK participation in its preparation was entrusted by Technical Committee LBI/36, Laboratory glassware and related apparatus, to Subcommittee LBI/36/2, General laboratory glass and plastic ware.

It supersedes BS 2734:1984 which is withdrawn.

A list of organizations represented on this subcommittee can be obtained on request to its secretary.

Cross-references

The British Standards which implement international or European publications referred to in this document may be found in the BSI Standards Catalogue under the section entitled “International Standards Correspondence Index”, or using the “Find” facility of the BSI Standards Electronic Catalogue.

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, the ISO title page, pages ii to iv, pages 1 to 4 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.

Amendments issued since publication

Amd. No.	Date	Comments

This British Standard, having been prepared under the direction of the Sector Board for Materials and Chemicals, was published under the authority of the Standards Board and comes into effect on 15 August 1997

© BSI 09-1999

ISBN 0 580 27852 2

Contents

	Page
National foreword	Inside front cover
Foreword	iii
Text of ISO 1773	1

INTERNATIONAL STANDARD

**ISO
1773**

Second edition
1997-04-01

Laboratory glassware — Narrow-necked boiling flasks

Verrerie de laboratoire — Fioles coniques et ballons à col étroit



Reference number
ISO 1773:1997(E)

Contents

	Page
Foreword	iii
1 Scope	1
2 Normative reference	1
3 Conical flasks	1
4 Flat-bottom and round-bottom flasks	2
5 Marking	3
Annex A (informative) Bibliography	4
Table 1 — Dimensions of conical flasks	2
Table 2 — Dimensions of flat- and round-bottom flasks	3

Descriptors: Laboratory equipment, laboratory glassware, flasks, conical flasks, specifications, dimensions, marking.

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.

Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

This International Standard ISO 1773 has been prepared by Technical Committee ISO/TC 48, *Laboratory glassware and related apparatus*, Subcommittee SC 2, *General laboratory glassware (other than measuring apparatus)*.

This second edition cancels and replaces the first edition (ISO 1773:1976) which has been technically revised and includes the following changes:

- dimensions and tolerances have been brought up to date;
- material and tests have been modified in accordance with ISO 3585.

Annex A of this International Standard is for information only.

1 Scope

This International Standard specifies requirements and dimensions for an internationally acceptable series of conical flasks and of flat-bottom and round-bottom flasks for general laboratory purposes. The flasks are provided for

- direct use in a laboratory, fitting together with other equipment for general laboratory purposes;
- further work up to other products.

NOTE Annex A lists additional International Standards for other general-purpose laboratory glassware.

2 Normative reference

The following standard contains provisions which, through reference in this text, constitute provisions of this International Standard. At the time of publication, the edition indicated was valid. All standards are subject to revision, and parties to agreements based on this International Standard are encouraged to investigate the possibility of applying the most recent edition of the standard indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 3585:1991, *Borosilicate glass 3.3 — Properties*.

3 Conical flasks

3.1 Series of nominal capacity

The series of nominal capacities of conical flasks is as follows (given in millilitres):

25 – 50 – 100 – 250 – 500 – 1 000 – 2 000 – 3 000 – 5 000

3.2 Nominal capacity

The nominal capacity of a flask is the value, selected from the series given in 3.1, which is closest to but not larger than the actual volume to the base of neck.

NOTE The body dimensions recommended in Table 1 take this requirement into account, and as far as possible are in accordance with the current production of flasks.

3.3 Material

Flasks shall be made from borosilicate glass 3.3 in accordance with ISO 3585, and shall be free from visible defects and free from internal stress which would impair the performance of the flask.

3.4 Construction

3.4.1 Stability

The flasks shall stand vertically without rocking or spinning when placed on a level surface.

3.4.2 Neck

The neck of the flask shall be substantially circular in cross-section and the mouth of the neck shall not be belled to any considerable distance from the top. The top of the neck shall be suitably strengthened.

3.5 Dimensions

3.5.1 Recommended dimensions

Dimensions for conical flasks are given in Table 1.

Table 1 — Dimensions of conical flasks

Dimensions in millimetres

Nominal volume ml	External diameter of body at widest point	External diameter of neck	Overall height	Minimum wall thickness
25	42 ± 1	22 ± 1	75 ± 3	0,8
50	51 ± 1	22 ± 1	90 ± 3	0,8
100	64 ± 1,5	22 ± 1	105 ± 3	0,8
250	85 ± 2	34 ± 1,5	145 ± 3	0,9
500	105 ± 2	34 ± 1,5	180 ± 4	0,9
1 000	131 ± 3	42 ± 2	220 ± 4	1,3
2 000	166 ± 3	50 ± 2	280 ± 4	1,5
3 000	187 ± 3	50 ± 2	310 ± 5	1,8
5 000	220 ± 3	50 ± 2	365 ± 5	1,8

3.5.2 Neck length

The length of the neck shall be 1 to 1,25 times the external diameter of the neck.

3.5.3 Dimensions of base

The radius at the junction between the base and the side of the flask shall be between 15 % and 20 % of the maximum external diameter.

3.5.4 Wall thickness

Minimum values for the wall thickness are given in Table 1. Substantial local irregularities shall be avoided. Manufacturers shall take care that minimum wall thicknesses are compatible with safety requirements.

NOTE Flasks may also be manufactured with minimum wall thickness of 1,0 mm for 1 000 ml flasks and of 1,1 mm for 2 000 ml flasks.

4 Flat-bottom and round-bottom flasks

4.1 Series of nominal capacities

The series of nominal capacities of flat-bottom and round-bottom flasks is as follows (given in millilitres):

50 – 100 – 250 – 500 – 1 000 – 2 000 – 4 000 – 6 000 – 10 000

4.2 Nominal capacity

The nominal capacity of a flask is the value, selected from the series given in 4.1, which is closest to but not larger than the actual volume to the base of neck.

NOTE The body dimensions recommended in Table 2 take this requirement into account, and as far as possible are in accordance with the current production of flasks.

4.3 Material

Flasks shall be made from borosilicate glass 3.3 in accordance with ISO 3585, and shall be free from visible defects and free from internal stress which would impair the performance of the flask.

4.4 Construction

4.4.1 Stability

The flat-bottom flasks shall stand vertically without rocking or spinning when placed on a level surface.

4.4.2 Neck

The neck of the flask shall be substantially circular in cross-section and the mouth of the neck shall not be belled to any considerable distance from the top. The top of the neck shall be suitably strengthened.

4.5 Dimensions

4.5.1 Recommended dimensions

Dimensions for flat-bottom and round-bottom flasks are given in Table 2.

4.5.2 Dimensions of base

The diameter of the base of flat-bottom flasks shall be approximately 50 % of the maximum external diameter.

Table 2 — Dimensions of flat- and round-bottom flasks

Dimensions in millimetres

Nominal volume ml	External diameter of body at widest point	External diameter of neck	Overall height		Minimum wall thickness
			flat bottom	round bottom	
50	51 ± 1	26 ± 1	90 ± 2	95 ± 2	0,8
100	$64 \pm 1,5$	26 ± 1	105 ± 2	110 ± 2	0,8
250	85 ± 2	$34 \pm 1,5$	138 ± 2	143 ± 2	0,9
500	105 ± 2	$34 \pm 1,5$	163 ± 2	168 ± 2	0,9
1 000	131 ± 3	42 ± 2	190 ± 3	200 ± 3	1,3
2 000	166 ± 3	50 ± 2	230 ± 3	240 ± 3	1,5
4 000	207 ± 3	$50 \pm 2,5$	275 ± 3	290 ± 3	1,8
6 000	236 ± 3	65 ± 3	315 ± 3	330 ± 3	1,8
10 000	279 ± 4	65 ± 3	360 ± 4	380 ± 4	2,0

4.5.3 Wall thickness

Minimum values for the wall thickness are given in Table 2. Substantial local irregularities shall be avoided. Manufacturers shall take care that minimum wall thicknesses are compatible with safety requirements.

NOTE Flasks may also be manufactured with minimum wall thickness of 0,8 mm for 250 ml and 500 ml flasks, and of 1,1 mm for 1 000 ml flasks.

5 Marking

The following inscriptions shall be permanently and legibly marked on all conical, flat-bottom and round-bottom flasks:

- the nominal volume of the flask, e.g. "100 ml" (or "100");
- the maker's or vendor's name or mark;
- each flask shall also bear an area with a surface suitable for marking with a pencil.

It is recommended that reference is made on each flask to this International Standard.

Annex A (informative)

Bibliography

- [1] ISO 383:1976, *Laboratory glassware — Interchangeable conical ground joints.*
- [2] ISO 384:1978, *Laboratory glassware — Principles of design and construction of volumetric glassware.*
- [3] ISO 641:1975, *Laboratory glassware — Interchangeable spherical ground joints.*
- [4] ISO 3819:1985, *Laboratory glassware — Beakers.*
- [5] ISO 4142:1997, *Laboratory glassware — Test tubes and culture tubes.*
- [6] ISO 4785:1997, *Laboratory glassware — Straight-bore glass stopcocks for general purposes.*
- [7] ISO 4796:1977, *Laboratory glassware — Bottles.*
- [8] ISO 4797:1981, *Laboratory glassware — Flasks with conical ground joints.*
- [9] ISO 4799:1978, *Laboratory glassware — Condensers.*
- [10] ISO 4800:1977, *Laboratory glassware — Separating funnels and dropping funnels.*
- [11] ISO 6556:1981, *Laboratory glassware — Filter flasks.*

BSI — British Standards Institution

BSI is the independent national body responsible for preparing British Standards. It presents the UK view on standards in Europe and at the international level. It is incorporated by Royal Charter.

Revisions

British Standards are updated by amendment or revision. Users of British Standards should make sure that they possess the latest amendments or editions.

It is the constant aim of BSI to improve the quality of our products and services. We would be grateful if anyone finding an inaccuracy or ambiguity while using this British Standard would inform the Secretary of the technical committee responsible, the identity of which can be found on the inside front cover. Tel: 020 8996 9000. Fax: 020 8996 7400.

BSI offers members an individual updating service called PLUS which ensures that subscribers automatically receive the latest editions of standards.

Buying standards

Orders for all BSI, international and foreign standards publications should be addressed to Customer Services. Tel: 020 8996 9001. Fax: 020 8996 7001.

In response to orders for international standards, it is BSI policy to supply the BSI implementation of those that have been published as British Standards, unless otherwise requested.

Information on standards

BSI provides a wide range of information on national, European and international standards through its Library and its Technical Help to Exporters Service. Various BSI electronic information services are also available which give details on all its products and services. Contact the Information Centre. Tel: 020 8996 7111. Fax: 020 8996 7048.

Subscribing members of BSI are kept up to date with standards developments and receive substantial discounts on the purchase price of standards. For details of these and other benefits contact Membership Administration. Tel: 020 8996 7002. Fax: 020 8996 7001.

Copyright

Copyright subsists in all BSI publications. BSI also holds the copyright, in the UK, of the publications of the international standardization bodies. Except as permitted under the Copyright, Designs and Patents Act 1988 no extract may be reproduced, stored in a retrieval system or transmitted in any form or by any means – electronic, photocopying, recording or otherwise – without prior written permission from BSI.

This does not preclude the free use, in the course of implementing the standard, of necessary details such as symbols, and size, type or grade designations. If these details are to be used for any other purpose than implementation then the prior written permission of BSI must be obtained.

If permission is granted, the terms may include royalty payments or a licensing agreement. Details and advice can be obtained from the Copyright Manager. Tel: 020 8996 7070.