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)

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.

International Organization for Standardization
Case postale 56 • CH-1211 Genève 20 • Switzerland
Internet central@iso.ch
X.400 c=ch; a=400net; p=iso; o=isocs; s=central

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Laboratory glassware - Narrow-necked boiling flasks

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 ± 1,5	26 ± 1	105 ± 2	110 ± 2	0,8
250	85 ± 2	34 ± 1,5	138 ± 2	143 ± 2	0,9
500	105 ± 2	34 ± 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 ± 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:

a) the nominal volume of the flask, e.g. "100 ml" (or "100");

b) the maker's or vendor's name or mark;

c) 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.