

INTERNATIONAL
STANDARD

ISO
13132

Second edition
2023-04

Laboratory glassware — Petri dishes

Verrerie de laboratoire — Boîtes de Petri

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Reference number
ISO 13132:2023(E)

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Published in Switzerland

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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.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

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For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT), see www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 48, *Laboratory equipment*, in collaboration with the European Committee for Standardization (CEN) Technical Committee CEN/TC 332, *Laboratory equipment*, in accordance with the Agreement on technical cooperation between ISO and CEN (Vienna Agreement).

This second edition cancels and replaces the first edition (ISO 13132:2011), which has been technically revised.

The main changes are as follows:

- additional series C for class HGB 3 has been added;
- new dimensions have been added to the series A;
- thermal shock resistance has been added.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

Laboratory glassware — Petri dishes

1 Scope

This document specifies requirements and tests for glass Petri dishes intended for general laboratory purposes and microbiological work.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 718, *Laboratory glassware — Thermal shock and thermal shock endurance — Test methods*

ISO 719, *Glass — Hydrolytic resistance of glass grains at 98 °C — Method of test and classification*

3 Terms and definitions

No terms and definitions are listed in this document.

ISO and IEC maintain terminology databases for use in standardization at the following addresses:

- ISO Online browsing platform: available at <https://www.iso.org/obp>
- IEC Electropedia: available at <https://www.electropedia.org/>

4 Types

Two types of Petri dishes are specified in this document:

- Type 1 — Thick-walled Petri dishes
- Type 2 — Thin-walled Petri dishes

5 Nominal sizes and series

5.1 Nominal sizes

Petri dishes shall have one of the following nominal sizes:

40 mm, 50 mm, 60 mm, 80 mm, 90 mm, 100 mm, 120 mm, 150 mm, 180 mm or 200 mm.

NOTE For Series B, nominal sizes refer to the external diameter of the bottom dish.

5.2 Series

Petri dishes shall comply with the following dimensional requirements:

- For Series A, the dimensions shall be in accordance with [Table 1](#) (only for Class HGB 1 or HGB 2).
- For Series B, the dimensions shall be in accordance with [Table 2](#) (only for Class HGB 1 or HGB 2).
- For Series C, the dimensions shall be in accordance with [Table 3](#) (only for Class HGB 3).

NOTE "HGB" stands for hydrolytic resistance, according to ISO 719.

6 Designation

Petri dishes in accordance with this document shall be designated by their nominal size, followed by the type and the series.

EXAMPLE 1 Designation of a thick-walled Petri dish with a nominal size of 120 mm, Type 1, Series A:

Petri dish ISO 13132 — 120 × 20 — 1A

If bottom dishes and top dishes (as shown in [Figure 1](#)) are ordered separately, the following designations shall be used.

EXAMPLE 2 Designation of a thick-walled bottom dish with a nominal size of 120 mm, Type 1, Series A:

Petri bottom dish ISO 13132 — 120 × 20 — 1A — 2

EXAMPLE 3 Designation of a thick-walled top dish with a nominal size of 120 mm, Type 1, Series A:

Petri top dish ISO 13132 — 120 × 20 — 1A — 1

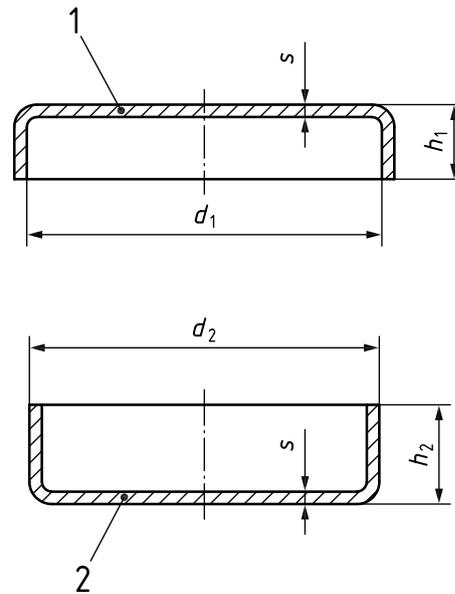
7 Material

Petri dishes shall be manufactured from transparent glass of hydrolytic resistance Class HGB 1, Class HGB 2 or Class HGB 3 in accordance with ISO 719. Series A and B can be manufactured from transparent glass of hydrolytic resistance of class HGB 1 or HGB 2, and the dimensions according to [8.1](#) respectively [8.2](#) shall be respected. Series C shall be manufactured from transparent glass of hydrolytic resistance made of HGB 3 and the dimensions according to [8.3](#) shall be respected.

The glass shall be reasonably free from residual strain and from defects which can impair safety, durability or appearance such as mould marks and waviness.

The glass shall not have any pronounced tint.

[Figure 1](#) includes a schematical presentation of a petri dish.

**Key**

- 1 top dish
 2 bottom dish
 d_1 inner diameter for dish cover
 h_1 height dish cover
 d_2 outer diameter for dish bottom
 h_2 height dish bottom
 s wall thickness

Figure 1 — Petri dish**8 Dimensions****8.1 Series A Petri dishes (class HGB 1 or HGB 2)**

Series A Petri dishes shall comply with the dimensions specified in [Table 1](#) and shall have hydrolytic resistance of class HGB 1 or HGB 2.

Table 1 — Dimensions for Series A Petri dishes

Dimensions in millimetres

Nominal size	Type 1 — Thick-walled					Type 2 — Thin-walled				
	d_1	d_2 0 -1	h_1 ± 1	h_2 ± 1	s \approx	d_1	d_2	h_1	h_2	s $\pm 0,3$
50 × 12	—	—	—	—	—	47 ± 1	45 ± 1	$9 \pm 1,5$	$14 \pm 1,5$	1,3
60 × 15	—	—	—	—	—	57 ± 1	54 ± 1	$12 \pm 1,5$	$15 \pm 1,5$	1,8
60 × 20	$55^{+1,5}_0$	54	15	20	2,5	56 ± 1	53 ± 1	$15 \pm 1,5$	20 ± 2	1,8
80 × 15	—	—	—	—	—	77 ± 1	74 ± 1	$11 \pm 1,5$	$15 \pm 1,5$	1,3
80 × 20	$71^{+1,5}_0$	70	15	20	2,5	76 ± 1	73 ± 1	$15 \pm 1,5$	20 ± 2	1,8
90 × 15	—	—	—	—	—	86 ± 1	84 ± 1	$12 \pm 1,5$	$15 \pm 1,5$	1,8

Table 1 (continued)

Nominal size	Type 1 — Thick-walled					Type 2 — Thin-walled				
	d_1	d_2 0 -1	h_1 ± 1	h_2 ± 1	s \approx	d_1	d_2	h_1	h_2	s $\pm 0,3$
95 × 18	—	—	—	—	—	93 ± 1,5	90 ± 1	16 ± 1,5	18 ± 1,5	1,6
100 × 15	91 ^{+1,5} ₀	90	13	15	3	96 ± 1	93 ± 1	11,5 ± 1,5	15 ± 2	1,8
100 × 20				20		96 ± 1	93 ± 1	11,5 ± 1,5	20 ± 2	1,8
120 × 20	111 ⁺² ₀	110	15	20	3,5	116 ± 1	113 ± 1	15 ± 1,5	20 ± 2	1,8
150 × 25	—	—	—	—	—	145 ± 1,5	140 ± 1,5	20 ± 2	26 ± 2	2
150 × 30	140 ⁺² ₀	139	15	30	4	146 ± 1,5	141,5 ± 1,5	18 ± 2	27 ± 2	1,8
180 × 30	—	—	—	—	—	185 ± 1,5	179 ± 1,5	27 ± 2	30 ± 2	2
200 × 30	—	—	—	—	—	195 ± 2	190 ± 2	25 ± 2	30 ± 2	2

8.2 Series B Petri dishes (class HGB 1 or HGB 2)

Series B Petri dishes shall comply with the dimensions specified in Table 2 and shall have hydrolytic resistance of class HGB 1 or HGB 2. For any pair of Series B Petri dishes, the difference between the internal diameter of the top dish and the external diameter of the bottom dish shall be between 2 mm to 4 mm.

Table 2 — Dimensions for Series B Petri dishes

Dimensions in millimetres

Nominal size	Type 2 — Thin-walled				
	d_1	d_2	h_1	h_2	s
	+1 0	0 -1	0 -1	+1 0	min.
50 × 17	53	50	15	17	1,0
80 × 17	83	80	15	17	1,0
100 × 17	103	100	15	17	1,5
150 × 20	153	150	17	20	1,5
200 × 20	203	200	20	20	1,5

8.3 Series C Petri dishes (class HGB 3)

Series C Petri dishes shall comply with the dimensions specified in Table 3 and shall have hydrolytic resistance of class HGB 3.

Table 3 — Dimensions for Series C Petri dishes

Dimensions in millimetres

Nominal size	Type 2 — Thin-walled				
	d_1	d_2	h_1	h_2	s
40 × 12	34,5 ^{+1,5}	34 ₋₂	8 ± 1	12 ± 1	1,1 ± 0,1
60 × 15	55,5 ^{+1,8}	55 ₋₂	12 ± 1,5	15 ± 1,5	1,1 ± 0,1
80 × 15	75,5 ^{+1,8}	75 ₋₂	12 ± 1,5	15 ± 1,5	1,4 ± 0,1
90 × 15	85,5 ^{+1,5}	85 ₋₂	12 ± 1,5	15 ± 1,5	1,4 ± 0,1

Table 3 (continued)

Nominal size	Type 2 — Thin-walled				
	d_1	d_2	h_1	h_2	s
100 × 10	95,5 ⁺²	95,5 ₋₂	7 ± 1	10 ± 1,5	1,4 ± 0,1
100 × 15			12 ± 2	15 ± 1,5	
100 × 20			15 ± 2	20 ± 2	
120 × 20	115,5 ⁺²	115 ₋₂	15 ± 2	20 ± 2	1,4 ± 0,1
150 × 25	143,5 ^{+2,5}	142 _{-2,5}	18 ± 2,3	25 ± 1,8	1,7 ± 0,2
180 × 30	193,5 ⁺³	172 _{-2,5}	24 ± 2,3	30 ± 2	2 ± 0,3
200 × 30	193,5 ⁺³	193 ₋₃	24 ± 2,5	30 ± 2	2 ± 0,5
200 × 45	193,5 ⁺³	193 ₋₃	35 ± 2,5	45 ± 2,5	2 ± 0,5
200 × 50	193,5 ⁺³	193 ₋₃	40 ± 2,5	45 ± 2,5	2 ± 0,5

9 Construction

9.1 Basic requirements

Petri dishes shall be regular in shape (e.g. [Figure 1](#)) and smoothly finished. They shall be symmetrical about the axis which shall be perpendicular to the plane of the base.

9.2 Base and side

The bases of both the bottom and top dishes shall be, as far as possible, in one plane surface and the sides shall be perpendicular to the base with a maximum deviation of 3°. The bases may be given a slight crown to prevent rocking.

9.3 Edge

The edges of the side wall of both bottom and top dishes shall be smoothly ground, fire-polished or clean pressed. The edges shall be in a plane parallel to their bases. If the edges are finished by the burn-off process, there shall not be any tear-drop extending above the plane of cut-off in the bottom dish. In the top dish such protrusion up to 1 mm is permissible.

9.4 Flatness of bottom dishes

The inside depth at any two points on the base of the bottom dish shall not vary by more than 1,2 mm when measured in accordance with [Annex A](#).

9.5 Performance requirements

Petri dishes shall not show a visible decrease in transparency, opalescence, iridescence, frosting or cracks after testing by the following procedures:

- minimum 15 min wet sterilization at minimum 120 °C;
- minimum 1 h dry sterilization at minimum 160 °C.

9.6 Thermal shock resistance

Petri dishes shall have a thermal shock resistance of min 110 °C when tested in accordance with ISO 718.