

BUREAU OF INDIAN STANDARDS

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भारतीय मानक मसौदा

प्रशीतत डिस्पले केबिनेट

भाग 2 वर्गीकरण, अपेक्षाएँ तथा परीक्षाण अवस्थाएँ

(आई एस ओ 23953-2 : 2015, मॉड)

[आई एस 16672 (भाग 2) : 2017/आई एस ओ 23953-2 : 2015 का पहला पुनरीक्षण]

DRAFT Indian Standard

**REFRIGERATED DISPLAY CABINETS
PART 2 CLASSIFICATION, REQUIREMENTS AND TEST CONDITIONS
(ISO 23953-2 : 2015, MOD)**

(First revision of IS 16672 (Part 2) : 2017/ ISO 23953-2 : 2015)

ICS 27.080; 27.200

**Refrigeration and Air Conditioning
Sectional Committee, MED 03**

**Last date for receipt of
comments is 30 May 2022**

FOREWORD

(Adoption clauses to be added later)

This standard supersedes IS 1474: 1959 'Specification for commercial refrigerators'.

This standard was first published in 2017.

The major change in this revision is the technical deviation for the country-specific requirements that are listed in National Annex A.

Under the general title ‘Refrigerated display cabinets’, the standard is in two parts, other part in this series is as follows:

Part 1 : Vocabulary

In the adopted standard certain terminology and conventions are not identical with those used in Indian Standards; attention is drawn specially to the following:

- a) Comma (,) has been used as a decimal marker while in Indian Standards the current practice is to use a point (.) as the decimal marker.
- b) Wherever the words ‘International Standard’ appear, referring to this standard, they should be read as ‘Indian Standard’.

In the adopted standard, reference appears to certain International Standards for which Indian Standards also exist. The corresponding Indian Standards which are to be substituted in their places are listed below along with their degree of equivalence for the edition indicated:

<i>International Standard</i>	<i>Corresponding Indian Standard</i>	<i>Degree of Equivalence</i>
ISO 817 : 2014 ‘Refrigerants-Designation and safety classification’	IS 16656:2017/ISO 817 : 2014 Refrigerants-Designation and safety classifications	Identical
ISO 5149-2: 2014 Refrigerating systems and heat pumps -- Safety and environmental requirements - - Part 2: Design, construction, testing, marking and documentation	IS 16678:2017/ISO 5149-2: 2014 Refrigerating systems and heat pumps — Safety and environmental requirements Part 2 Design, construction, testing, marking and documentation	Identical
ISO 23953-1: 2015 Refrigerated display cabinets - Part 1: Vocabulary	IS 16672 (Part 1) : 2017/ ISO 23953-1 : 2015 Refrigerated display cabinets Part 1: Vocabulary	Identical
IEC 60335-1 : 2010 Household and similar electrical appliances : Part 1 General requirements	IS 302 (Part 1) : 2008 Safety of household and similar electrical appliances: Part 1 general requirements (<i>sixth revision</i>)	Modified
IEC 60335-2-89:2010 Household and similar electrical appliances - Safety - Part 2-89: Particular requirements for commercial refrigerating appliances with an	IS/IEC 60335-2-89 : 2010 Household and similar electrical appliances — Safety Part 2-89: Particular requirements for commercial refrigerating appliances with an incorporated or	Identical

incorporated or remote refrigerant remote refrigerant unit or
unit or compressor. compressor

For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test or analysis shall be rounded off in accordance with IS 2:2022 ‘Rules for rounding off numerical values (*second revision*)’. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

Note: The technical content of the document has not been enclosed as these are identical with the corresponding ISO standard. For details, please refer the corresponding ISO 23953-2:2015 ‘Refrigerated display cabinets — Part 2: Classification, requirements and test conditions’ or kindly contact:

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**NATIONAL ANNEX A
LISTS OF TECHNICAL DEVIATIONS**

A-1 TECHNICAL DEVIATIONS

(Formal clauses to be added later)

<i>Sl No.</i>	<i>Clause/Sub-clause</i>	<i>Modification</i>
i)	1	<p>Insert the following to the existing clause:</p> <p>‘Following are excluded from the scope of this standard:</p> <ul style="list-style-type: none"> a) Deep freezers covered in IS 7872; b) Combined appliance (Freezer and cooler); c) Appliances designed for medical applications; and d) Appliances apart from mains operated only.
ii)	1	<p>Insert the following note:</p> <p>NOTE — The appliances covered under this standard are not intended for cooling down (pull-down) but are intended for maintaining the product temperature.</p>
iii)	2	<p>Insert the following to the existing:</p> <p>17550 (Part 3) : 2021 Household Refrigerating Appliance — Characteristics and test methods Part 3 Energy Consumption and volume</p>
iv)	4.1.1.1, a)	<p>Insert the following to the existing:</p> <p>‘Adequate strength and rigidity shall be ensured by shelf load test as per 21.102 of IS/IEC 60335-2-89.’</p>
v)	4.1.1.4	<p>Insert the following to the existing:</p> <p>‘The transparent doors and lids should be subjected to water vapor condensation test as per 4.2.4 and 5.3.4. The acceptance criteria are condensation code “F” or better as defined in 5.3.4.’</p>
vi)	5.3.1.1	Delete last para.

- vii) **5.3.1.2** Delete following para:
- ‘The mean horizontal air velocity measured during 1 min with a maximal interval of 5 s at each of the points defined above shall lie between 0,1 m/s and 0,2 m/s.’
- viii) **5.2.2** Insert the following to the existing:
- The cabinet internal volume measurement to be measured as per IS 17550 (Part 3).
- ix) **6.3.6** Insert following new clauses after **6.3.6**:

6.4 Type Test

The tests specified below shall constitute the type tests and shall be carried out on a sample selected preferably at random from regular production or from the finished stock. Before commencement of the tests, the sample shall be visually examined and inspected of components, parts and their assembly, constructions, mechanical hazards, marking provision of suitable terminals for supply connections, earthing, and the screws effectiveness and connection. The external surface finish shall be even and free from finishing defects.

The following shall constitute as the type tests:

- a) Seal test of doors and lids (*see 6.2.1*);
- b) Linear dimensions, areas and volumes (*see 6.2.2*);
- c) Test for absence of odour and taste (*see 6.2.3*);
- d) Temperature test (*see 6.3.3*);
- e) Water vapour condensation test (*see 6.3.4*);
- f) Electrical energy consumption test (*see 6.3.5*); and
- g) Heat extraction rate measurement when the condensing unit is remote from the cabinet (*see 6.3.6*).

6.5 Routine Test

Each unit shall be subjected to the routine tests at the manufacturer’s works. The following shall constitute as a routine test as per IS 302-1:

- a) Leakage current test — The leakage current shall not exceed 3.5 mA at rated voltage (*see 13.2*);
 - b) Earth continuity test (*see A-1*); and
 - c) Electric strength (*see A-2*).
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x) **7.2** Insert the following to the existing:

‘g) Country of manufacture.’

xi) **7.3** Insert the following new clause after **7.3**:

‘7.4 BIS Certification Marking

The product conforming to the requirements of this standard may be certified as per the conformity assessment schemes under the provisions of the *Bureau of Indian Standards Act, 2016* and the Rules and Regulations framed thereunder, and the product may be marked with the Standard Mark.’
