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BSI Standards Publication

Refrigerated display cabinets

Part 2: Classification, requirements and test conditions

bsi.

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National foreword

This British Standard is the UK implementation of EN ISO 23953-2:2023. It is identical to ISO 23953-2:2023. It supersedes BS EN ISO 23953-2:2015, which is withdrawn.

The UK participation in its preparation was entrusted to Technical Committee RHE/19, Commercial refrigerated food cabinets (cold room and display cases).

A list of organizations represented on this committee can be obtained on request to its committee manager.

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For the Great Britain market (England, Scotland and Wales), if UK Government has designated this publication for conformity with UKCA marking (or similar) legislation, it may contain an additional National Annex. Where such a National Annex exists, it shows the correlation between this publication and the relevant UK legislation. If there is no National Annex of this kind, the relevant Annex ZA or ZZ in the body of the European text will indicate the relationship to UK regulation applicable in Great Britain. References to EU legislation may need to be read in accordance with the UK designation and the applicable UK law. Further information on designated standards can be found at www.bsigroup.com/standardsandregulation.

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UK Government is responsible for legislation. For information on legislation and policies relating to that legislation, consult the relevant pages of www.gov.uk.

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Date	Text affected
31 July 2025	Implementation of CEN correction notice 24 January 2024: Annex ZA and Annex ZB have been replaced in the European foreword

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Meubles frigorifiques de vente - Partie 2: Classification, exigences et méthodes d'essai (ISO 23953-2:2023)

Verkaufskühlmöbel - Teil 2: Klassifizierung, Anforderungen und Prüfbedingungen (ISO 23953-2:2023)

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European foreword

This document (EN ISO 23953-2:2023) has been prepared by Technical Committee ISO/TC 86 "Refrigeration and air-conditioning" in collaboration with Technical Committee CEN/TC 44 “Commercial and Professional Refrigerating Appliances and Systems, Performance and Energy Consumption” the secretariat of which is held by UNI.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by June 2024, and conflicting national standards shall be withdrawn at the latest by June 2024.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN shall not be held responsible for identifying any or all such patent rights.

This document supersedes EN ISO 23953-2:2015.

This document has been prepared under a Standardization Request given to CEN by the European Commission and the European Free Trade Association, and supports essential requirements of EU Directive(s) / Regulation(s).

For the relationship with EU Directive(s) / Regulation(s), see informative Annex ZA and ZB, which is an integral part of this document.

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Endorsement notice

The text of ISO 23953-2:2023 has been approved by CEN as EN ISO 23953-2:2023 without any modification.

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Annex ZA
(informative)

Relationship between this European Standard and the ecodesign requirements of Commission Regulation (EU) No 2019/2024 OJEU L 315/313 aimed to be covered

This European Standard has been prepared under a Commission's standardization request M/582 C(2022) 2764 final to provide one voluntary means of conforming to the ecodesign requirements of Commission Regulation (EU) No 2019/2024 of 1st October 2019 implementing Directive 2009/125/EC of the European Parliament and of the Council with regard to ecodesign requirements for refrigerating appliances with a direct sales function OJEU L 315/313 5th December 2019 keeping into account the amending Commission Regulation (EU) 2021/341 of 23 February 2021 OJEU L 68/108.

Once this standard is cited in the Official Journal of the European Union under that Regulation, compliance with the normative clauses of this standard given in Table ZA.1 confers, within the limits of the scope of this standard, a presumption of conformity with the corresponding ecodesign requirements of that Regulation and associated EFTA regulations.

Table ZA.1 — Correspondence between this European Standard and Commission Regulation (EU) No 2019/2024 of 01 October 2019 implementing Directive 2009/125/EC of the European Parliament and of the Council with regard to ecodesign requirements for refrigerating appliances with a direct sales function OJEU L 315/313 5th December 2019 and Commission's standardisation request M/582 C(2022) 2764 final

Ecodesign Requiremen Regulation (EU) No 2019/2024 OJEU L 315/ 5th December 2019	Clause(s)/sub-clause(s) (EN	Remarks/Notes
Article 4.3. (b)	Annex D.3, D.4, D.5, D.6, D.7	Calculation methods
Annex III 1	Annex D.2	General condition for the t See below for loading heigl references
	5.3.3.3.2 a); b); c)	
	5.3.3.3.2 (d) i.	Loading of vertical closed freezer shall be half loadin
	5.3.3.3.2 (d) ii.	Loading of vertical closed c cabinet shall be full loadin
Annex III 2	5.1, 5.2.1, 5.2.3, 5.3.1, 5.3.2 5.3.3, 5.3.4, 5.3.6, 5.3.7, An and Annex D	Energy consumption and A A for S_{TDA} calculation. E_{daily} is equivalent to E_{TEC}; T equivalent to S_{TDA}.
Annex III Table 4	Table E.1	M and N coefficients

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Annex ZB
(informative)

Relationship between this European Standard and the energy labelling requirements of Commission Delegated Regulation (EU) No 2019/2018 OJEU L 315/155 aimed to be covered

This European Standard has been prepared under a Commission's standardization request M/582 C(2022) 2764 final to provide one voluntary means of conforming to the energy labelling requirements of Commission Delegated Regulation (EU) No 2019/2018 of 11th March 2019 supplementing Directive 2010/30/EU of the European Parliament and of the Council with regard to energy labelling of refrigerating appliances with a direct sales function OJEU L 315/155 5th December 2019 keeping into account the amending Commission Regulation (EU) 2021/340 of 17 December 2020 OJEU L 68/108.

Once this standard is cited in the Official Journal of the European Union under that Regulation, compliance with the normative clauses of this standard given in Table ZB.1 confers, within the limits of the scope of this standard, a presumption of conformity with the corresponding energy labelling requirements of that Regulation and associated EFTA regulations.

Table ZB.1 — Correspondence between this European Standard and Commission Delegated Regulation (EU) No 2019/2018 of 11th March 2019 supplementing Directive 2010/30/EU of the European Parliament and of the Council with regard to energy labelling of refrigerating appliances with a direct sales function OJEU L 315/155 5th December 2019 and Commission's standardisation request M/582 C(2022) 2764 final

Energy labelling requirements of Regula (EU) No 2019/2018 OJ 315/155 5th December 201	Clause(s)/sub-clause(s) EN	Remarks/Notes
Annex III 1.2 item ,vi	5.1, 5.2.1, 5.2.3, 5.3.1, 5.3.2 5.3.3, 5.3.4, 5.3.6, 5.3.7 an Annex D	Testing methods , efficienc calculation E_{daily} is equivalent to E_{TEC}, s line below for Annex IV 2 b
Annex III 1.2 items vii and	Annex A	S_{TDA} calculation TDA is equivalent to S_{TDA}. S line below for Annex IV 2.c (TDA)
Annex III 1.2 items viii and	5.3.4	Classification according to temperature
Annex IV 1	Annex D.2	General condition for the t
Annex IV 2	5.1, 5.2.1, 5.2.3, 5.3.1, 5.3.2 5.3.3, 5.3.4, 5.3.6, 5.3.7, Ar and Annex D	Energy consumption and A A for S_{TDA} calculation
	5.3.3.3.2 a); b); c)	

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	5.3.3.3.2 (d) i.	Loading of vertical closed freezer shall be half loading
	5.3.3.3.2 (d) ii.	Loading of vertical closed chilled cabinet shall be full loading
Annex IV 2 b	5.1, 5.2.1, 5.2.3, 5.3.1, 5.3.2, 5.3.3, 5.3.4, 5.3.6, 5.3.7 and Annex D	E_{daily} is equivalent to E_{TEC}.
Annex IV 2.c).4.d) (TDA)	Annex A	S_{TDA} calculation TDA is equivalent to S_{TDA}.
Annex IV Table 3	Table E.1	M and N coefficients

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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 document 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).

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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 86, *Refrigeration and air-conditioning*, Subcommittee SC 7, *Testing and rating of commercial refrigerated display cabinets*, in collaboration with the European Committee for Standardization (CEN) Technical Committee CEN/TC 44, *Commercial and Professional Refrigerating Appliances and Systems, Performance and Energy Consumption*, in accordance with the Agreement on technical cooperation between ISO and CEN (Vienna Agreement).

This third edition cancels and replaces the second edition (ISO 23953-2:2015), which has been technically revised.

The main changes are as follows:

— revision of:

  — the scope has been revised as this document not applicable to commercial beverage coolers covered by ISO 22044 and ice cream freezers covered by ISO 22043;

  — mass flow with EEV only, to adapt standard to technological improvement;

  — $E_{\mathrm{CPEC,24h}}$ also for brine / indirect cooling;

  — testing repeatability;

  — requirements for refrigerant with glide;

— addition of:

  — extrapolation methods for liquid cooled condensing units, depth, height, length and plug-in alternative components;

  — liquid cooled condensing unit (semi plug-in) type;

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— S_{TDA} for new types of cabinets;

— standard rating conditions and configurations;

— marking, load limits, multiple loading line for different M-package temperature.

A list of all parts in the ISO 23953 series can be found on the ISO website.

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Refrigerated display cabinets —

Part 2:
Classification, requirements and test conditions

1 Scope

This document specifies requirements for the performance of refrigerated display cabinets used in the sale and display of foodstuffs and construction characteristics impacting performance. It specifies test conditions and methods for checking that the requirements have been satisfied, as well as classification of the cabinets, their marking and the list of their characteristics to be declared by the manufacturer.

This document is not applicable to refrigerated vending machines, commercial beverage coolers covered by ISO 22044, ice cream freezers covered by ISO 22043. It is also not applicable to cabinets intended for storage or cabinets intended for use, for instance, in catering or non-retail refrigerated applications.

This document does not cover health and safety aspects and ergonomic principles.

This document is not intended to specify storage temperature for foodstuff.

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 817:2014, *Refrigerants — Designation and safety classification*

ISO 5149-2:2014, *Refrigerating systems and heat pumps — Safety and environmental requirements — Part 2: Design, construction, testing, marking and documentation*

ISO 23953-1:2023, *Refrigerated display cabinets — Part 1: Vocabulary*

IEC 60335-1:2020, *Household and similar electrical appliances — Safety — Part 1: General requirements*

IEC 60335-2-89:2019, *Household and similar electrical appliances — Safety — Part 2-89: Particular requirements for commercial refrigerating appliances and ice-makers with an incorporated or remote refrigerant unit or motor-compressor*

3 Terms, definitions, symbols and abbreviated terms

3.1 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 23953-1:2023 and the following apply.

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/

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