

**SLOVENSKI STANDARD
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**Hladilne omare in pulti za profesionalno uporabo - Zmogljivost in poraba energije
(ISO 22041:2019)**

Refrigerated storage cabinets and counters for professional use - Performance and energy consumption (ISO 22041:2019)

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Servicekühltheeken- und -tische für den gewerblichen Gebrauch - Leistung und Energieaufnahme (ISO 22041:2019)

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Armoires et comptoirs frigorifiques de stockage destinés à un usage professionnel - Performances et consommation d'énergie (ISO 22041:2019)

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EUROPEAN STANDARD

EN ISO 22041

NORME EUROPÉENNE

EUROPÄISCHE NORM

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Refrigerated storage cabinets and counters for professional use - Performance and energy consumption (ISO 22041:2019)

Armoires et comptoirs frigorifiques de stockage
destinés à un usage professionnel - Performances et
consommation d'énergie (ISO 22041:2019)

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Gebrauch - Leistung und Energieaufnahme (ISO
22041:2019)

This European Standard was approved by CEN on 24 May 2019.

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CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

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European foreword

This document (EN ISO 22041:2019) 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of an identical text or by endorsement, at the latest by December 2019, and conflicting national standards shall be withdrawn at the latest by December 2019.

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.

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**Refrigerated storage cabinets and
counters for professional use —
Performance and energy consumption**

*Armoires et comptoirs frigorifiques de stockage destinés à un usage
professionnel — Performances et consommation d'énergie*

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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).

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Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

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*.

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.

Refrigerated storage cabinets and counters for professional use — Performance and energy consumption

1 Scope

This document specifies requirements for the verification of performance and energy consumption of refrigerated storage cabinets and counters for professional use in commercial kitchens, hospitals, canteens, preparation areas of bars, bakeries, gelateria, institutional catering and similar professional areas.

The products covered in this document are intended to store foodstuffs. It specifies test conditions and methods for checking that the requirements have been satisfied, as well as classification of the cabinets and counters, their marking and the list of their characteristics to be declared by the manufacturer.

It is not applicable to:

- refrigerated cabinets used in the direct sale of foodstuffs;
- cabinets that carry out food processing and not just storage function (e.g. bakery cabinets that chill, heat and humidify);
- cabinets with water cooled condenser;
- appliances with remote condensing unit;
- appliances with open top tables and saladettes for preparation or storage of foodstuffs;
- cabinets specifically intended for storage of specific foodstuffs (i.e. fresh meat, fresh fish, etc.) operating at a temperature different from those specified in [Table 1](#);
- chest freezers;
- appliances intended for short time /intermittent normal operation during the full day;
- built-in cabinets;
- roll-in cabinets;
- pass-through cabinets;
- ice cream freezers.

2 Normative references

There are no normative references in this document.

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

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

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

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3.1 refrigerated storage cabinet
cabinet cooled by an incorporated refrigerating system which enables chilled and frozen foodstuffs placed therein to be maintained within prescribed temperature limits

Note 1 to entry: Refrigerated storage cabinets are supplied with:

- transparent door: door where the transparent part is more than 20 % of the surface of the door;
- solid door: door where the transparent part is less than 20 % of the surface of the door.

3.1.1 vertical cabinet
refrigerated storage cabinet (3.1), having overall height equal or higher than 1 050 mm with one or more front doors or drawers accessing the same compartment

3.1.2 counter cabinet
refrigerated storage cabinet (3.1), having overall height lower than 1 050 mm, with one or more front doors or drawers accessing the same compartment

3.1.3 roll-in cabinet
refrigerated cabinet intended to be loaded with trolleys with shelves and designed to be introduced as such in the compartment

3.1.4 pass-through cabinet
refrigerated cabinet accessible from both sides

3.1.5 semi-professional or light duty cabinet
refrigerated cabinet for which the measurement of energy consumption and the capability of maintaining temperature in the compartment are verified when tested at test room climate class 3

3.1.6 normal duty cabinet
refrigerated cabinet for which the measurement of energy consumption and the capability of maintaining temperature in the compartment are verified when tested at test room climate class 4

3.1.7 heavy duty cabinet
refrigerated cabinet for which the verification of the capability of maintaining the temperature in the compartment is performed when tested at test room climate class 5 and the measurement of energy consumption is verified when tested at test room climate class 4

3.1.8 static air cabinet
cooling system without fan inside the cabinet, or system in which the fan can be switched off by the user

3.1.9 built-in cabinet
refrigerated storage cabinet (3.1) intended to be installed into a prepared recess in a wall or similar location and requiring furniture finishing

3.1.10 refrigerator
appliance where the chilled foodstuff is stored at temperature corresponding to that of class M1

3.1.11 freezer
appliance where the frozen foodstuff is stored at temperature corresponding to that of class L1

3.1.12**combined refrigerated cabinet**

refrigerated cabinet with different temperatures for chilled and/or frozen foodstuffs in separate compartments of the same cabinet

3.1.13**multi use refrigerated cabinet**

refrigerated cabinet or separate compartment of the same cabinet that may be set at different temperatures for chilled or frozen foodstuffs

3.1.14**ice cream freezer**

horizontal closed refrigerated cabinet intended to store and/or display and sell pre-packed ice cream where access by the consumer to the pre-packed ice cream is gained by opening a lid (solid or transparent)

3.2**commercial kitchen**

area in commercial premises where foodstuffs are processed and stored

Note 1 to entry: This area also includes counter area in a bar.

3.3**overall external dimensions**

dimensions of the right parallelepiped bounded by the length, depth and height of the cabinet, including its projecting accessories

3.4**net volume**

volume containing foodstuffs within the load limit

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3.5**shelf**

surface, excluding the base deck, on which the goods are stored

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3.6**shelf sham**

device intended to limit the loading of a shelf surface

3.7**shelf area**

area defined by the external dimensions of the *shelf* (3.5) or internal dimensions of the base of the drawer

Note 1 to entry: The shelf area used for the calculation of volume is different from the area loaded with packages as given in 5.3.3.3.

Note 2 to entry: In case of shelves that are recessed into the cabinet walls the recess part is not considered for the calculation of the surface area.

3.8**load limit**

each part of the cabinet boundary surface consisting of a plane or several planes within which foodstuffs can be loaded

3.9**load limit line**

permanently marked boundary line denoting the limit of the loading surface