



**SLOVENSKI STANDARD**  
**SIST EN ISO 5155:2000**  
**01-december-2000**

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**Household refrigerating appliances - Frozen food storage cabinets and food freezers - Characteristics and test methods (ISO 5155:1995)**

Household refrigerating appliances - Frozen food storage cabinets and food freezers - Characteristics and test methods (ISO 5155:1995)

Haushalts-Kühlgeräte - Tiefkühl- und Gefriergeräte - Eigenschaften und Prüfverfahren (ISO 5155:1995)

Appareils de réfrigération a usage ménager - Conservateurs de denrées congelées et congélateurs - Caractéristiques et méthodes d'essai (ISO 5155:1995)

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**Ta slovenski standard je istoveten z: EN ISO 5155:1995**

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**ICS:**

97.040.30	Hladilni aparati za dom	Domestic refrigerating appliances
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EUROPEAN STANDARD

EN ISO 5155

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**Household refrigerating appliances - Frozen food  
storage cabinets and food freezers -  
Characteristics and test methods  
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Comité Européen de Normalisation  
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## Foreword

The text of the International Standard ISO 5155:1995 has been prepared by Technical Committee ISO/TC 86 "Refrigeration" in collaboration with CEN/TC 44 "Household refrigerating appliances and commercial refrigerated cabinets".

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of an identical text or by endorsement, at the latest by May 1996, and conflicting national standards shall be withdrawn at the latest by May 1996.

According to CEN/CENELEC Internal Regulations, the following countries are bound to implement this European Standard: Austria, Belgium, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.

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NOTE: Normative references to international publications are listed in annex ZA (normative).

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**Annex ZA (normative)****Normative references to international publications  
with their relevant European publications**

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN</u>	<u>Year</u>
ISO 534	1988	Paper and board - Determination of thickness and Apparent bulk density or apparent sheet density	EN 20534	1993

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**ISO**  
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**Household refrigerating appliances —  
Frozen food storage cabinets and food  
freezers — Characteristics and test  
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Reference number  
ISO 5155:1995(E)

## ISO 5155:1995(E)

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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.

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.

International Standard ISO 5155 was prepared by Technical Committee ISO/TC 86, *Refrigeration*, Subcommittee SC 5, *Construction and testing of household refrigerators*.

This second edition cancels and replaces the first edition (ISO 5155:1983), which has been technically revised.

Annexes A and B of this International Standard are for information only.

# Household refrigerating appliances — Frozen food storage cabinets and food freezers — Characteristics and test methods

## 1 Scope

This International Standard specifies the essential characteristics for household frozen food storage cabinets and food freezers which are wholly factory assembled, and lays down the methods of test for the checking of these characteristics.

It does not apply to low-temperature compartments ("one-", "two-" and "three-star" compartments) which are covered in ISO 7371, or freezer compartments incorporated in refrigerators, which are covered in ISO 8187.

It does not include refrigerating performance characteristics and tests, or particular definitions for appliances cooled by internal forced air circulation, which are the subject of ISO 8561.

The tests described in this International Standard are type tests. When it is necessary to verify the performance of a freezer of a given type in relation to this International Standard, all the tests described should in principle be applied to one and the same unit.

These tests can also be made individually for the study of a particular characteristic.

Where no test method is specified, the particular requirement concerned is to be considered as a recommendation.

The electrical and mechanical safety requirements applicable to household frozen food storage cabinets and food freezers are specified in IEC 335-2-24.

Additional safety requirements applicable to mechanical refrigerating systems of household frozen food storage cabinets and food freezers are given in ISO 5149.

The safety requirements applicable to gaseous and liquid fuel heating equipment of absorption-type household refrigerating systems will form the subject of a future International Standard.

## 2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this International Standard. At the time of publication, the editions indicated were 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 editions of the standards indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 534:1988, *Paper and board — Determination of thickness and apparent bulk density or apparent sheet density.*

ISO 817:—<sup>1)</sup>, *Refrigerants — Number designation.*

ISO 5149:1993, *Mechanical refrigerating systems used for cooling and heating — Safety requirements.*

IEC 335-2-24:1992, *Safety of household and similar electrical appliances — Part 2: Particular requirements for refrigerators, food freezers and ice-makers.*

1) To be published. (Revision of ISO 817:1974)

### 3 Definitions

For the purposes of this International Standard, the following definitions apply.

#### 3.1 Appliances

##### NOTES

1 From the point of view of installation, there are various types of household refrigerator-freezers and their combinations: free-standing, built-in, etc.

2 Definitions 3.1.1 and 3.2.2 are in line with those for a "three star" compartment and food freezer compartment given in ISO 8187.

##### 3.1.1 household frozen food storage cabinet

(hereinafter referred to as "three star" cabinet): Insulated cabinet of suitable volume and equipment for household use, cooled by energy-consuming means and having one or more compartments. The storage temperature of the compartments, measured as described in clause 13, is not warmer than  $-18\text{ }^{\circ}\text{C}$ .

##### 3.1.2 household food freezer

(hereinafter referred to as freezer): Insulated cabinet of suitable volume and equipment for household use, cooled by energy-consuming means and having one or more compartments for freezing fresh food. The freezer is suitable for freezing, from  $+25\text{ }^{\circ}\text{C}$  to  $-18\text{ }^{\circ}\text{C}$  for class SN, N and ST appliances, and from  $+32\text{ }^{\circ}\text{C}$  to  $-18\text{ }^{\circ}\text{C}$  for class T appliances (see clause 4), a quantity of at least 4,5 kg of test packages per 100 l of its storage volume in 24 h, and in no case less than 2 kg, under the test conditions specified in clause 17, and is also suitable for the storage of frozen food under storage conditions (see 3.1.1).

**3.2 "two star" section:** Part of a freezer or of a cabinet which is not self-contained (i.e. which does not have its own individual access door or lid), in which the storage temperature (see 3.4.3), measured as described in clause 13, is not warmer than  $-12\text{ }^{\circ}\text{C}$ . (See also 7.2.4.)

#### 3.3 General definitions

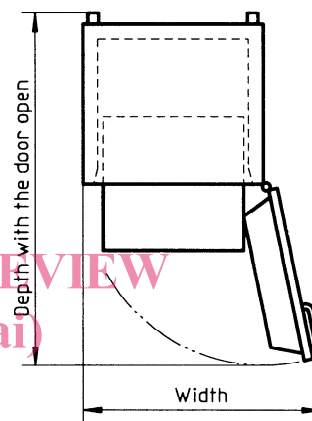
**3.3.1 top-opening type:** A "three star" cabinet or freezer whose compartment(s) is (are) accessible from the top.

**3.3.2 upright type:** A "three star" cabinet or freezer whose compartment(s) is (are) accessible from the front.

**3.3.3 overall dimensions** (doors or lids closed): Measurements of the rectangular parallelepiped,

whose base is horizontal, within which the "three star" cabinet or freezer is inscribed to include the complete appliance except for the handle, the protrusion of which, if any, is to be specified separately.

**3.3.4 overall space required in use** (doors or lids open): Overall dimensions including the handle, increased by the space necessary for free circulation of the cooling air when the appliance is in service, plus the space necessary to allow opening of the means of access up to that minimum angle permitting removal of all removable parts such as containers and shelves. (See figure 1.)



**Figure 1 — Overall space required in use (upright type)**

#### 3.3.5 Volumes

**3.3.5.1 gross volume:** The volume within the inside walls of the appliance, or of a compartment with external door, without internal fittings, doors or lids being closed.

**3.3.5.2 rated gross volume:** Gross volume stated by the manufacturer.

**3.3.5.3 total gross volume:** Sum of the gross volumes of "three star" cabinets and freezer compartments [including any "two star" section(s)], even if their doors or lids are independent.

**3.3.5.4 rated total gross volume:** Total gross volume stated by the manufacturer.

**3.3.5.5 storage volume:** That part of the gross volume of any compartment which remains after deduction of the volume of components and spaces recognized as unusable for the storage of food, de-

terminated by the method given in 7.2, and also after deduction of the volume of any "two star" section.

**3.3.5.6 rated storage volume:** Storage volume stated by the manufacturer.

**3.3.5.7 total storage volume:** Sum of the storage volumes of the appliance [including any "two star" section(s)], comprising storage volumes of "three star" cabinets and freezer compartments.

**3.3.5.8 rated total storage volume:** Total storage volume stated by the manufacturer.

### 3.3.6 Storage surface

**3.3.6.1 shelf:** For the purpose of this International Standard, a shelf is any horizontal surface (shelves, partitions, etc.) on which food can be placed.

It may be formed by one component or by components fitted side by side, which may be fixed or removable.

**3.3.6.2 storage shelf area:** Sum of the horizontal projections of the storage surfaces within the storage volume, including door shelves and the bottom of each compartment, determined in accordance with 7.3.

**3.3.6.3 rated storage shelf area:** Storage shelf area stated by the manufacturer.

**3.3.7 load limit(s):** Surface enveloping the "three star" cabinet volume(s).

**3.3.8 load limit line(s):** Permanent mark(s) indicating the limits of "three star" cabinet volume(s).

## 3.4 Definitions relating to some performance characteristics

**3.4.1 energy consumption:** Consumption of a "three star" cabinet and freezer over a period of 24 h, running under stable operating conditions at an ambient temperature of + 25 °C (in the case of class SN, class N and class ST appliances) or + 32 °C (in the case of class T "three star" cabinet and freezer) (see clause 4) and measured under the conditions specified in clause 15.

**3.4.2 rated energy consumption:** Energy consumption stated by the manufacturer.

**3.4.3 frozen food storage temperature,  $t^{***}$ ,  $t^{**}$**  (as appropriate): Maximum temperature of the warmest "M" package of a load placed in storage as specified in 8.5.

**3.4.4 freezing capacity** (applicable only to freezers): Mass of test packages whose temperature (taken as the instantaneous arithmetical mean temperature of all the "M" packages) can be lowered from the loading temperature of + 25 °C or + 32 °C (see 8.1.1) to - 18 °C in 24 h under the test conditions specified in clause 17. The freezing capacity is expressed in kilograms.

**3.4.5 rated freezing capacity** (applicable only to freezers): Freezing capacity stated by the manufacturer.

**3.4.6 "M" package:** A test package in accordance with 8.2, of dimensions 50 mm × 100 mm × 100 mm, fitted with a temperature sensor at its geometric centre.

**3.4.7 control cycle:** Period between two successive starts, or two successive stops, of a refrigerating system under stable operating conditions.

**3.4.8 stable operating conditions:** In the case of cyclic operation of a refrigerating system, stable operating conditions are deemed to be reached when, for each of the "M" packages, the temperatures at all corresponding points during successive operating cycles agree within ± 0,5 K and there is no marked trend away from the mean temperature during a period of about 24 h.

In the case of continuous operation of a refrigerating system, stable operating conditions are deemed to be reached when, although there may be a certain variation in temperature, the increase or decrease in the temperature of all the "M" packages does not exceed 0,5 K during a period of 18 h.

**3.4.9 percentage running time,  $R$**  (apparatus with on/off control for the refrigerating source): Under given conditions of ambient temperature and of internal storage temperature, the ratio

$$R = \frac{d}{D} \times 100$$

where

$d$  is the duration of the refrigerating unit operation during a whole number of cycles;

$D$  is the total duration of the cycles.

**3.4.10 ambient temperature:** Temperature in the space surrounding the appliance under test. It is the arithmetical average of the mean value of temperatures  $t_{a1}$  and  $t_{a2}$ , measured (see 8.1.1) at two points