

Household refrigerating appliances -
Characteristics and test methods (ISO
15502:2005, IDT)

november 2005
ICS 97.040.30

Vervangt NEN-ISO 8187:1992; NEN-ISO
8187:1992/A1:1998; NEN-EN-ISO 5155:1995; NEN-EN-
ISO 7371:1995; NEN-EN-ISO 7371:1995/A1:1998; NEN-
EN-ISO 8561:1995; NEN-EN-ISO 8561:1995/A1:1998;
NEN-EN-ISO 15502:2003 Ontw.

Als Nederlandse norm is aanvaard:
- EN ISO 15502:2005, IDT
- ISO 15502:2005, IDT

Normcommissie 341 042 "Huishoudelijke koelkasten en commerciële vrieskasten"

Apart from exceptions provided by the law, nothing from this publication may be duplicated and/or published by means of photocopy, microfilm, storage in computer files or otherwise, which also applies to full or partial processing, without the written consent of the Netherlands Standardization Institute.

The Netherlands Standardization Institute shall, with the exclusion of any other beneficiary, collect payments owed by third parties for duplication and/or act in and out of law, where this authority is not transferred or falls by right to the Reproduction Rights Foundation.

Auteursrecht voorbehouden. Behoudens uitzondering door de wet gesteld mag zonder schriftelijke toestemming van het Nederlands Normalisatie-instituut niets uit deze uitgave worden veeleenvoudigd en/of openbaar gemaakt door middel van fotokopie, microfilm, opslag in computerbestanden of anderszins, hetgeen ook van toepassing is op gehele of gedeeltelijke bewerking.

Het Nederlands Normalisatie-instituut is met uitsluiting van ieder ander gerechtigd de door derden verschuldigde vergoedingen voor veeleenvoudiging te innen en/of daartoe in en buiten rechte op te treden, voor zover deze bevoegdheid niet is overgedragen c.q. rechtens toekomt aan de Stichting Reprerecht.

Although the utmost care has been taken with this publication, errors and omissions cannot be entirely excluded. The Netherlands Standardization Institute and/or the members of the committees therefore accept no liability, not even for direct or indirect damage, occurring due to or in relation with the application of publications issued by the Netherlands Standardization Institute.

Hoewel bij deze uitgave de uiterste zorg is nagestreefd, kunnen fouten en onvolledigheden niet geheel worden uitgesloten. Het Nederlands Normalisatie-instituut en/of de leden van de commissies aanvaarden derhalve geen enkele aansprakelijkheid, ook niet voor directe of indirecte schade, ontstaan door of verband houdend met toepassing van door het Nederlands Normalisatie-instituut gepubliceerde uitgaven.

Nederlands voorwoord

Voor de in deze norm vermelde normatieve verwijzingen bestaan in Nederland de volgende equivalenten:

<u>vermelde norm</u>	<u>Nederlandse norm</u>	<u>titel</u>
ISO 534	NEN-EN-ISO 534	Papier en karton - Bepaling van de dikte, dichtheid en specifieke volume (en)
ISO 817	NEN-ISO 817	Organische koelmiddelen - Aanduidingssysteem (en)
ISO 8960	ISO 8960	Koelkasten, vrieskasten en diepvrieskasten voor voedsel voor huishoudelijk en soortgelijk gebruik - Meting van het geluidniveau (en)
IEC 60335-2-24	NEN-EN-IEC 60335-2-24	Huishoudelijke en soortgelijke elektrische toestellen - Veiligheid - Deel 2-24: Bijzondere eisen voor koelkasten, diepvriezers en ijsbereiders (en)

Orbital
Preview

ICS 97.040.30

Supersedes EN 28187:1991, EN ISO 5155:1995, EN ISO 7371:1995, EN ISO 8561:1995

English Version

Household refrigerating appliances - Characteristics and test methods (ISO 15502:2005)

Appareils de réfrigération à usage ménager -
Caractéristiques et méthodes d'essai (ISO 15502:2005)

Haushalt-Kühl-/Gefriergeräte - Eigenschaften und
Prüfverfahren (ISO 15502:2005)

This European Standard was approved by CEN on 19 September 2005.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Central Secretariat or to any CEN member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the Central Secretariat has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.



EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

Management Centre: rue de Stassart, 36 B-1050 Brussels

Foreword

This document (EN ISO 15502:2005) has been prepared by Technical Committee ISO/TC 86 "Refrigeration and air-conditioning" in collaboration with Technical Committee CEN/TC 44 "Household refrigerating appliances and commercial refrigeration equipment", 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 April 2006, and conflicting national standards shall be withdrawn at the latest by April 2006.

This document supersedes EN 28187:1991, EN ISO 5155:1995, EN ISO 7371:1995 and EN ISO 8561:1995.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.

Endorsement notice

The text of ISO 15502:2005 has been approved by CEN as EN ISO 15502:2005 without any modifications.

INTERNATIONAL
STANDARD

ISO
15502

First edition
2005-10-15

Preview

**Household refrigerating appliances —
Characteristics and test methods**

*Appareils de réfrigération à usage ménager — Caractéristiques et
méthodes d'essai*



Reference number
ISO 15502:2005(E)

© ISO 2005

ISO 15502:2005(E)

PDF disclaimer

This PDF file may contain embedded typefaces. In accordance with Adobe's licensing policy, this file may be printed or viewed but shall not be edited unless the typefaces which are embedded are licensed to and installed on the computer performing the editing. In downloading this file, parties accept therein the responsibility of not infringing Adobe's licensing policy. The ISO Central Secretariat accepts no liability in this area.

Adobe is a trademark of Adobe Systems Incorporated.

Details of the software products used to create this PDF file can be found in the General Info relative to the file; the PDF-creation parameters were optimized for printing. Every care has been taken to ensure that the file is suitable for use by ISO member bodies. In the unlikely event that a problem relating to it is found, please inform the Central Secretariat at the address given below.

Copyright
Preview

© ISO 2005

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from either ISO at the address below or ISO's member body in the country of the requester.

ISO copyright office
Case postale 56 • CH-1211 Geneva 20
Tel. + 41 22 749 01 11
Fax + 41 22 749 09 47
E-mail copyright@iso.org
Web www.iso.org

Published in Switzerland

Contents

	Page
Foreword.....	iv
1 Scope.....	1
2 Normative references.....	1
3 Terms, definitions and symbols.....	1
4 Classification.....	8
5 Materials, design and manufacture.....	8
6 Storage temperatures.....	10
7 Determination of linear dimensions, volumes and areas.....	12
8 General test conditions.....	18
9 Testing air-tightness of doors, lids or drawer seals.....	25
10 Testing opening force of doors or lids.....	25
11 Testing the durability of doors, lids and drawers.....	25
12 Testing mechanical strength of shelves and similar components.....	28
13 Testing storage temperatures.....	29
14 Water vapour condensation test.....	33
15 Energy consumption test.....	34
16 Temperature rise test.....	39
17 Freezing test.....	40
18 Ice-making test.....	44
19 Final test report.....	47
20 Designation.....	47
21 Marking.....	48
22 Technical and commercial product information.....	50
23 Instructions for users.....	51
Annex A (informative) Conditions particular to certain countries	72
Annex B (informative) Percentage running time	74
Annex C (informative) Test for absence of taste and odour	75
Annex D (normative) Built-in refrigerating appliances	78
Annex E (informative) Rated characteristics and control procedure	79
Bibliography	81

ISO 15502:2005(E)

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.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. 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.

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.

ISO 15502 was prepared by Technical Committee ISO/TC 86, *Refrigeration and air-conditioning*, Subcommittee SC 5, *Testing and rating of household refrigeration appliances*.

This first edition cancels and replaces ISO 5155:1995, ISO 7371:1995, ISO 8187:1991 and ISO 8561:1995, of which it constitutes a technical revision. It also incorporates the amendments ISO 7371:1995/Amd.1:1997, ISO 8187:1991/Amd.1:1997 and ISO 8561:1995/Amd.1:1997.

Household refrigerating appliances — Characteristics and test methods

1 Scope

This International Standard specifies the essential characteristics of household refrigerating appliances, factory-assembled and cooled by internal natural convection or forced air circulation, and establishes test methods for checking the characteristics. These are type tests, and because of this, when verification of the performance of a refrigerating appliance of a given type in relation to this International Standard is necessary, it is preferable, wherever practicable, that all the tests specified be applied to a single unit. The tests can also be made individually for the study of a particular characteristic.

NOTE For the safety requirements applicable to household refrigerating appliances, see IEC 60335-2-24, for noise requirements applicable to household refrigerators and freezers, see ISO 8960, and for additional safety requirements applicable to the refrigerating systems of household refrigerating appliances, see in ISO 5149.

2 Normative references

The following referenced documents are indispensable for the application 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 534, *Paper and board — Determination of thickness, density and specific volume*

ISO 817, *Refrigerants — Designation system*

ISO 8960, *Refrigerators, frozen-food storage cabinets and food freezers for household and similar use — Measurement of emission of airborne acoustical noise*

IEC 60335-2-24:—¹⁾, *Household and similar electrical appliances — Safety — Part 2-24: Particular requirements for refrigerating appliances, ice-cream appliances and ice-makers*

3 Terms, definitions and symbols

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

3.1

refrigerating appliance

factory-assembled insulated cabinet with one or more compartments and of suitable volume and equipment for household use, cooled by natural convection or a frost-free system whereby the cooling is obtained by one or more energy-consuming means

NOTE From the point of view of installation, there are various types of household refrigerating appliance (free-standing, wall-mounted, built-in, etc.).

1) To be published. (Revision of IEC 60335-2-24:2002)

ISO 15502:2005(E)

3.1.1**compression-type refrigerating appliance**

refrigerating appliance in which refrigeration is effected by means of a motor-driven compressor

3.1.2**absorption-type refrigerating appliance**

refrigerating appliance in which refrigeration is effected by an absorption process using heat as energy source

3.1.3**refrigerator**

refrigerating appliance intended for the preservation of food, one of whose compartments is suitable for the storage of fresh food

3.1.3.1**frost-free refrigerator**

refrigerator in which all compartments are automatically defrosted with automatic disposal of the defrosted water and at least one compartment is cooled by a frost-free system and at least one is a "frozen-food storage" compartment

NOTE

A single-compartment refrigerator using a frost-free system cannot be called a frost-free refrigerator.

3.1.4**refrigerator-freezer**

refrigerating appliance having at least one compartment suitable for the storage of fresh food (the fresh-food storage compartment) and at least one other (the food freezer compartment) suitable for the freezing of fresh food and the storage of frozen food under three-star storage conditions

3.1.4.1**frost-free refrigerator-freezer**

refrigerator-freezer in which all compartments are automatically defrosted with automatic disposal of the defrosted water and at least one compartment is cooled by a frost-free system

3.1.5**frozen-food storage cabinet**

refrigerating appliance having one or more compartments suitable for the storage of frozen food

3.1.5.1**frost-free frozen-food storage cabinet**

frozen-food storage cabinet in which all compartments are automatically defrosted with automatic disposal of the defrosted water and which is cooled by a frost-free system

3.1.6**food freezer**

refrigerating appliance having one or more compartments suitable for freezing foodstuffs from ambient temperature down to a temperature of $-18\text{ }^{\circ}\text{C}$ and which is also suitable for the storage of frozen food under three-star storage conditions

NOTE

In certain instances, two-star sections and/or compartments are permitted within the compartment or cabinet (see 7.2.8).

3.1.6.1**frost-free food freezer**

food freezer in which all compartments are automatically defrosted with automatic disposal of the defrosted water and at least one compartment is cooled by a frost-free system

3.1.7**built-in appliance**

fixed refrigerating appliance intended to be installed in a cabinet, in a prepared recess in a wall or similar location

3.2

frost-free system

system automatically operated to prevent the permanent formation of frost, in which cooling is provided by forced air circulation, the evaporator or evaporators are defrosted by an automatic defrost system and the water from defrosting is disposed of automatically

3.3 Compartments and sections

3.3.1

fresh-food storage compartment

compartment intended for the storage of unfrozen food, which may itself be divided into sub-compartments

NOTE The storage temperatures can be maintained according to Clause 6.

3.3.2

cellar compartment

compartment intended for the storage of particular foods or beverages at a temperature warmer than that of the fresh-food storage compartment

NOTE The storage temperatures can be maintained according to Clause 6.

3.3.3

chill compartment

compartment intended specifically for the storage of highly perishable foodstuffs whose volume is capable of containing at least 2 M packages

NOTE The storage temperatures can be maintained according to Clause 6.

3.3.4

ice-making compartment

low-temperature compartment intended specifically for the freezing and storage of ice

3.3.5

frozen-food storage compartment

low-temperature compartment intended specifically for the storage of frozen food

NOTE Frozen-food storage compartments are classified according to temperature, see 3.3.5.1 to 3.3.5.5.

3.3.5.1

one-star compartment

frozen-food storage compartment in which the temperature is not warmer than -6°C

3.3.5.2

two-star compartment

frozen-food storage compartment in which the temperature is not warmer than -12°C

3.3.5.3

three-star compartment

frozen-food storage compartment in which the temperature is not warmer than -18°C

3.3.5.4

food freezer compartment

four-star compartment

compartment suitable for freezing foodstuffs from ambient temperature down to -18°C , and which is also suitable for the storage of frozen food under three-star storage conditions

NOTE Two-star sections and/or compartments are permitted within the compartment or cabinet (see 7.2.8).

ISO 15502:2005(E)

3.3.5.5**two-star section**

part of a food freezer compartment or cabinet, or three-star compartment or cabinet, which is not self-contained (i.e. does not have its own individual access door or lid) and in which the temperature is not warmer than $-12\text{ }^{\circ}\text{C}$

3.4**rated**

stated as a value (e.g. a volume) by the manufacturer

3.5 Physical aspects and dimensions**3.5.1****top-opening type**

refrigerating appliance in which the compartment(s) are accessible from the top

3.5.2**upright type**

refrigerating appliance in which the compartment(s) are accessible from the front

3.5.3**overall dimensions**

space — height, width and depth — with doors or lids closed taken up by the refrigerating appliance

3.5.4**overall space required in use**

total space — height, width and depth — with doors or lids open necessary for the refrigerating appliance for normal use

3.5.5**gross volume**

volume within the inside liner of the refrigerating appliance, or of a compartment with an external door, without internal fittings and with the doors or lids closed

3.5.6**storage volume**

part of the gross volume of any compartment that remains after deduction of the volume of components and spaces recognized as unusable for the storage of food

NOTE

See 7.2.

3.5.7**shelf**

horizontal surface (shelves, partitions, etc.) on which food can be placed

NOTE

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

3.5.8**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

NOTE

See 7.3.

3.5.9**load limit**

surface enveloping a frozen-food storage volume

Bestelformulier

Stuur naar:

NEN Standards Products & Services
t.a.v. afdeling Klantenservice
Antwoordnummer 10214
2600 WB Delft



NEN Standards Products & Services

Postbus 5059
2600 GB Delft

Vlinderweg 6
2623 AX Delft

T (015) 2 690 390
F (015) 2 690 271

www.nen.nl/normshop

Ja, ik bestel

__ ex. NEN-EN-ISO 15502:2005 en Koelkasten voor huishoudelijk gebruik - € 179.33
Eisen en beproevingsmethoden

Wilt u deze norm in PDF-formaat? Deze bestelt u eenvoudig via www.nen.nl/normshop

Gratis e-mailnieuwsbrieven

Wilt u op de hoogte blijven van de laatste ontwikkelingen op het gebied van normen, normalisatie en regelgeving? Neem dan een gratis abonnement op een van onze e-mailnieuwsbrieven. www.nen.nl/nieuwsbrieven

Gegevens

Bedrijf / Instelling _____

T.a.v. _____ O M O V

E-mail _____

Klantnummer NEN _____

Uw ordernummer _____ BTW nummer _____

Postbus / Adres _____

Postcode _____ Plaats _____

Telefoon _____ Fax _____

Factuuradres (indien dit afwijkt van bovenstaand adres)

Postbus / Adres _____

Postcode _____ Plaats _____

Datum _____ Handtekening _____

Retourneren

Fax: 015 2 690 271

E-mail: klantenservice@nen.nl

Post: NEN Standards Products & Services,

t.a.v. afdeling Klantenservice
Antwoordnummer 10214,
2600 WB Delft

(geen postzegel nodig).

Voorwaarden

- De prijzen zijn geldig tot 31 december 2018, tenzij anders aangegeven.
- Alle prijzen zijn excl. btw, verzend- en handelingskosten en onder voorbehoud bij o.m. ISO- en IEC-normen.
- Bestelt u via de normshop een pdf, dan betaalt u geen handeling en verzendkosten.
- Meer informatie: telefoon 015 2 690 391, dagelijks van 8.30 tot 17.00 uur.
- Wijzigingen en typfouten in teksten en prijsinformatie voorbehouden.
- U kunt onze algemene voorwaarden terugvinden op: www.nen.nl/leveringsvoorwaarden.