



SLOVENSKI STANDARD
SIST EN 441-9:2000

01-december-2000

Refrigerated display cabinets - Part 9: Electrical energy consumption test

Refrigerated display cabinets - Part 9: Electrical energy consumption test

Verkaufskühlmöbel - Teil 9: Prüfung der elektrischen Energieaufnahme

Meubles frigorifiques de vente - Partie 9: Essai de consommation d'énergie électrique

Ta slovenski standard je istoveten z: EN 441-9:1994

[SIST EN 441-9:2000](https://standards.iteh.ai/catalog/standards/sist/c68c6659-b2ac-4312-9888-46ad680e135a/sist-en-441-9-2000)

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ICS:

97.130.20 Hladilne naprave za trgovine Commercial refrigerating
appliances

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EUROPEAN STANDARD

EN 441-9

NORME EUROPÉENNE

EUROPÄISCHE NORM

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Descriptors: Refrigerators, furniture, commerce, tests, measurements, electricity consumption, testing conditions

English version

**Refrigerated display cabinets - Part 9: Electrical
energy consumption test**

Meubles frigorifiques de vente Partie 9: Verkaufskühlmöbel - Teil 9: Prüfung der
Essai de consommation d'énergie électrique elektrische Energieaufnahme

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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.

The European Standards exist 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, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

CEN

European Committee for Standardization
Comité Européen de Normalisation
Europäisches Komitee für Normung

Central Secretariat: rue de Stassart, 36 B-1050 Brussels

Foreword

This European Standard has been prepared by the Technical Committee CEN/TC 44 "Household refrigerating appliances", the secretariat of which is held by UNI.

This European Standard shall be given the status of National Standard, either by publication of an identical text or by endorsement, at the latest by april 1995, and conflicting National Standards shall be withdrawn at the latest by april 1995.

This European is part of a series:

- Part 1: Refrigerated display cabinets - Terms and definitions
- Part 2: Refrigerated display cabinets - General mechanical and physical requirements
- Part 3: Refrigerated display cabinets - Linear dimensions, areas and volumes
- Part 4: Refrigerated display cabinets - General test conditions
- Part 6: Refrigerated display cabinets - Classification according to temperature
- Part 7: Refrigerated display cabinets - Defrosting test
- Part 8: Refrigerated display cabinets - Water vapour condensation test
- Part 9: Refrigerated display cabinets - Electrical energy consumption test
- Part 10: Refrigerated display cabinets - Test for the absence of odour and taste
- Part 11: Refrigerated display cabinets - Installation, maintenance and user's guide

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According to the 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.

1 Scope

1.1 This standard specifies terminology, general mechanical and physical requirements, test conditions as well as installation, maintenance and user's guide for refrigerated display cabinets for the sale and/or display of food products.

This standard does not cover refrigerated vending machines or cabinets intended for use in catering or similar non retail applications.

1.2 This part of EN 441 specifies the method of measuring the consumption of electrical energy for refrigerated display cabinets.

2 Normative references

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.

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EN 441-4 Refrigerated display cabinets - Part 4: General test conditions

pr EN 441-5 Refrigerated display cabinets - Part 5: Temperature test

3 Test procedure

3.1 Test conditions

Locate and load the cabinet as for the temperature test (see EN 441-4 and pr EN 441-5) operate it in accordance with the manufacturer's instructions at the conditions appropriate to the test room climate class for which it is intended, and then operate it for at least 24 h after stable operating conditions have been reached (see EN 441-4, 5.4) or during the operating period of cabinets intended to be switched off at night (see pr EN 441-5, 3.2).

NOTE: This test may be carried out concurrently with the temperature test.

3.2 Lighting

For cabinets supplied without night-covers, any built-in cabinet lighting shall be on continuously during the test.

3.3 Night-covers

If night-covers are supplied, the night-covers and cabinet lighting shall be manipulated as follows:

- 1st test: night-covers removed and cabinet lighting on continuously during the test period.
- 2nd test: night-covers removed and cabinet lighting switched on for a period of 12 h followed by a period of 12 h with the night-covers on and the cabinet lighting switched off.

4 Measurements

4.1 Cabinet fitted with integral condensing unit

The electrical energy consumption and the relative running time (ratio of running time to overall duration of a measurement cycle) shall be measured (that is with all fitted electrical power-using components switched on).

4.2 Cabinet with remote condensing unit

The electrical energy consumption of the cabinet only shall be measured (that is with all fitted electrical power-using components switched on).

5 Recording

The total electrical energy consumption shall be recorded for a period beginning and ending at corresponding points of the time/temperature cycle. This period shall not be less than 24 h. In the case of a cabinet with integral condensing unit, the compressor switching on/off frequency and relative running time shall be recorded too.

The total electrical energy consumption recorded for each test shall be the summation of all electrical energy consumed by the refrigerated cabinet during the test period.

6 Test report

The test report shall clearly state:

- a) the manufacturer's name or trade mark or both;
- b) the model and serial number of the cabinet as well as the description of its internal fittings;
- c) the test room climate class for which the cabinet is intended and in which the test has been made;
- d) the method of temperature control, defrost process, defrost termination, setting parameters and sensor locations;
- e) whether the test was made with or without night-covers;
- f) the total electrical energy consumption of the refrigerated cabinet during the test, expressed in kilowatt hours per 24 h;
- g) the relative running time.

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