



SLOVENSKI STANDARD
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Poraba energije prodajnih avtomatov

Energy consumption of vending machines

Energieverbrauch von Verkaufsautomaten

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Energy consumption of vending machines

To be completed

Energieverbrauch von Verkaufsautomaten

This draft European Standard is submitted to CENELEC members for CENELEC enquiry.
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It has been drawn up by CLC/TC 59.

If this draft becomes a European Standard, CENELEC 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.

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Recipients of this draft are invited to submit, with their comments, notification of any relevant patent rights of which they are aware and to provide supporting documentation.

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CENELEC

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

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Foreword

This document (prEN 50597:2013) has been prepared by CLC/TC 59 "Performance of household and similar electrical appliances".

This document is currently submitted to the Enquiry.

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Introduction

Due to mandate 495, Standardisation mandate to CEN, CENELEC and ETSI under Directive 2009/125/EC relating to harmonised standards in the field of Ecodesign, Annex A; this standard became necessary.

Vending machines are included under Lot 12 of the Energy Using Products Directive 2005/32 EC.

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1 Scope

This International Standard defines methods for the measurement of energy consumption of vending machines, whether or not fitted with refrigerating appliances.

The standard applies (but is not limited) to the following categories of machine types:

Table 1 - Vending machine categories

CATEGORY	MACHINE TYPE
1	Refrigerated closed face can & bottle machines
2	Refrigerated glass fronted confectionery & snack machines
3	Refrigerated glass fronted machines for perishable foodstuffs
4	Confectionery and snack machines that are not refrigerated

For verification purposes all the tests specified are to be applied to a single unit. The tests may also be made individually for the study of a particular characteristic.

This standard does not deal with any characteristics of machine design other than energy consumption.

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2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 50564:2011, Electrical and electronic household and office equipment. Measurement of low power consumption

EN 62552, ed. 1.0, Household refrigerating appliances. Characteristics and test methods (IEC 62552)

EN ISO 23953-1:2005+A1:2012, Refrigerated display cabinets - Part 1: Vocabulary (ISO 23953-1:2005 + A1:2012)

EN ISO 23953-2:2005+A1:2012, Refrigerated display cabinets - Part 2: Classification, requirements and test conditions ISO 23953-2:2005 +A 1:2012

EN ISO 15502:2005, Household refrigerating appliances - Characteristics and test Methods (ISO 15502:2005)

CENELEC Internal Guide: TC59X/WG16/(Sec)008/INF - Method for calculation of uncertainty of measurements

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3 Terms and definitions

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

3.1 Relating specifically to the vending process

3.1.1

automatic defrosting

defrosting where no action is necessary by the user to initiate the removal of frost accumulation and to restore normal operation

Note 1 to entry: it includes the automatic removal of defrost water.

3.1.2

cabinet

enclosure within a vending machine in which product is held ready to be vended

3.1.3

automatic energy saving mode

mode of a vending machine in which energy reducing measures are automatically applied as a result of operational controls fitted by the manufacturer. These could include light or movement sensors. Timers or other controls that can be adjusted by the machine operating company do not qualify as automatic unless they have a permanent minimum configuration level that cannot be overridden by the machine operating company, in which case they may be operational for the automatic energy saving mode test at their minimum configuration

3.1.4

factory settings

settings that are made in the factory before the machine is sent to the customer; these include, but are not limited to, thermostat settings, defrost cycles and energy saving features

3.1.5

health control cut out function

machines intended for the storage and vending of perishable foodstuffs must be fitted with a function that prevents vending if the foodstuff experiences a time/temperature condition outside that permitted under food safety regulations. Machines with a health control cutout function are deemed category 3 machines; any machines without an equivalent function cannot qualify as category 3 machines

3.1.6

loading or filling

process of putting products into the vending machine

Note 1 to entry: This may require the door of the machine to be open.

3.1.7

manufacturer's instructions

instructions that accompany the machine, including advice on installation of the machine at the final operating location

3.1.8

non-refrigerated machines

vending machines with no refrigeration system fitted. These may dispense a variety of products including but not limited to newspapers, non-perishable snacks and toys

3.1.9

perishable foodstuffs

foods, such as dairy products, sandwiches and plated meals that are required to be kept chilled under food safety regulations. Requirements vary between EU Member States

3.1.10

pull down

reduction of temperature inside the product storage area of a chilled vending machine to the machine's nominal operating temperature as specified by the manufacturer. For example as required following the loading operation

3.1.11

ready mode

mode of a vending machine in which the machine is available (ready) for use but no products are taken. In this mode vended products are available for immediate delivery

3.1.12

vending machine for perishable foodstuffs

machines designed for the safe storage of perishable foods that meet the necessary regulatory requirements. Presence of a health control cutout function is an essential part of that requirement

3.1.13

vending mode

transient mode of a vending machine during which products are dispensed

3.1.14

zone cooled vending machine

vending machines for which the cabinet is not fully cooled throughout its volume and in which product is cooled to the final vending temperature only as it reaches close to the dispensing mechanism (this is the usual configuration for category 1 machines)

Note 1 to entry: zone cooled machines are not appropriate for perishable foodstuffs.

3.2 Relating to the tests

3.2.1

climate class

climate conditions under which the machine is designed to operate, see Annex A

3.2.2**net volume**

net internal refrigerated volume of the cabinet within which the products directly available for vending are contained, measured according to 6.4

3.2.3**normal conditions of use**

operating conditions which exist when the **cabinet**, including all permanently located accessories, has been set up and situated as stated in the manufacturer's instructions / technical documentation and is in service

NOTE 1 to entry: The effects of actions by non-technical personnel for purposes of loading, unloading, cleaning, defrosting, the manipulation of accessible controls and any removable accessories etc., according to the **manufacturer's instructions** are within this definition. The effects of actions resulting from interventions by technical personnel for the purposes of maintenance or repair are outside this definition.

3.2.4**test package**

food product used as load when testing chilled food compartments. The test packages used in these tests shall be commercially available, unopened, 330 ml cans of soft drinks.

It has been established that the difference in heat capacity of cans of different soft drinks is insignificant in these tests

4 General requirements**4.1 Applicability**

This standard establishes the tests and calculations necessary to determine the energy rating of a vending machine.

The standard relates to the categories of vending machines described in Table 2.

Table 2 - Description of vending machine categories

CATEGORY	MACHINE TYPE	COMMENT
1	Refrigerated closed face can & bottle machines	These machines serve refrigerated beverages that are not visible before vending.
2	Refrigerated glass fronted confectionery & snack machines	These machines are refrigerated for foodstuffs serving quality reasons not related to food safety
3	Refrigerated glass fronted machines for perishable foodstuffs	These machines are refrigerated for food safety reasons and have a health control cutout function
4	Confectionery and snack machines that are not refrigerated	These machines store product at ambient temperature without cooling