SLOVENSKI STANDARD
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Poraba energije prodajnih avtomatov

Energy consumption of vending machines

Energieverbrauch von Verkaufsautomaten

Consommation d'énergie des distributeurs automatiques

Ta slovenski standard je istoveten z: **prEN 50597:2017**

ICS:

27.010	Prenos energije in toplote na splošno	Energy and heat transfer engineering in general
55.230	Razdelilni in prodajni avtomati	Distribution and vending machines

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Energy consumption of vending machines

Consommation d'énergie des distributeurs automatiques

Energieverbrauch von Verkaufsautomaten

This draft European Standard is submitted to CENELEC members for enquiry.
Deadline for CENELEC: 2017-10-13.

It has been drawn up by CLC/TC 59X.

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.

This draft European Standard was established by CENELEC in three official versions (English, French, German).
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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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European Committee for Electrotechnical Standardization
Comité Européen de Normalisation Electrotechnique
Europäisches Komitee für Elektrotechnische Normung

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European foreword

This document (prEN 50597:2017) was prepared by CLC/TC 59X, "Performance of household and similar electrical appliances", WG11, "Power consumption of vending machines".

This document is currently submitted to the Enquiry.

The following dates are proposed:

• latest date by which the existence of this document has to be announced at national level	(doa)	dor + 6 months
• latest date by which this document has to be implemented at national level by publication of an identical national standard or by endorsement	(dop)	dor + 12 months
• latest date by which the national standards conflicting with this document have to be withdrawn	(dow)	dor + 36 months (to be confirmed or modified when voting)

This document will supersede EN 50597:2015.

This document has been prepared under a mandate given to CENELEC by the European Commission and the European Free Trade Association.

Introduction

Vending machines are included in the European Commission's eco-design study on ENER Lot 12. It is foreseen that an Ecodesign Regulation implementing Directive 2009/125/EC on the eco-design of energy-related products will be adopted in the future, and a corresponding standardization request will be issued to CEN and CENELEC accordingly. The development of the present European Standard was deemed necessary in order to anticipate the above-mentioned developments.

1 Scope

This European 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 categories shown in Table 1 of machine types.

Table 1 — Vending machine categories

CATEGORY	MACHINE TYPE
1	Refrigerated closed fronted can and bottle machines where the products are held in stacks
2	Refrigerated glass fronted can and bottle, confectionery & snack machines
3	Refrigerated glass fronted machines entirely for perishable foodstuffs
4	Refrigerated dual-temperature glass fronted machines
5	Confectionery and snack machines that are not refrigerated
6	Combination machines consisting of two different categories of machine in the same housing and powered by one chiller

For verification purposes, all of 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.

2 Normative References

EN 50564, *Electrical and electronic household and office equipment - Measurement of low power consumption*

EN 60335-1, *Household and similar electrical appliances - Safety - Part 1: General requirements (IEC 60335-1)*

EN 60335-2-75, *Household and similar electrical appliances - Safety - Part 2-75: Particular requirements for commercial dispensing appliances and vending machines (IEC 60335-2-75)*

ISO 5149-2, *Refrigerating systems and heat pumps - Safety and environmental requirements - Part 2: Design, construction, testing, marking and documentation*

3 Terms and definitions

3.1 Terms 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

Note 1 to entry: These could include light or movement sensors.

Note 2 to entry: 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, including but not limited to thermostat settings, defrost cycles and energy saving features

3.1.5
health control cut out function
machines intended entirely for the storage and vending of perishable foodstuffs or with a compartment for the storage and vending of such foodstuffs must be fitted with a function that prevents vending of foodstuff if the machine or compartment experiences a time/temperature condition outside that permitted under food safety regulations

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

Note 1 to entry: 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

Note 1 to entry: 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

Note 1 to entry: 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
refrigerated dual temperature glass fronted machines
machines which can be set up to have more than one compartment, each of which is held at a different temperature, one of which is for perishable food

Note 1 to entry: The presence of a health control cut-out function in the perishable food compartment is essential.

Note 2 to entry: The compartments in these machines are sized according to the needs of the final customer. In practice, they are operated with no more than 50 % capacity at perishable food temperatures.

Note 3 to entry: If the machine includes a food safety thermal cut-out functionality, then for the purposes of testing, that compartment with the safety cut-out is deemed for storage of perishable foodstuff.

3.1.13
vending machine entirely for perishable foodstuffs
machine designed for the safe storage of perishable foods that meet the necessary regulatory requirements

Note 1 to entry: Presence of a health control cut-out function is an essential part of that requirement.

3.1.14
vending mode
transient mode of a vending machine during which products are dispensed

3.1.15
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
M-can
test can used to simulate a product during tests, fitted with a temperature measuring device

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** is in service with all permanently located accessories, set up and situated as stated in the manufacturer's instructions / technical documentation

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

Note 1 to entry: The test packages used in these tests shall be commercially available, unopened, 330 ml cans of drinks. The difference in heat capacity of different drinks is insignificant.

4 General requirements

4.1 Applicability

This European 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 and to any combination of them.

Table 2 — Description of vending machine categories

CATEGORY	MACHINE TYPE	COMMENT
1	Refrigerated closed fronted can and bottle machines where the products are held in stacks	These machines serve refrigerated beverages that are not visible before vending.
2	Refrigerated glass fronted can and bottle, confectionery & snack machines	These machines are for foodstuffs which are refrigerated for reasons not related to food safety
3	Refrigerated glass fronted machines entirely for perishable foodstuffs	These machines are refrigerated for food safety reasons and have a health control cut-out function
4	Refrigerated dual-temperature glass fronted machines	These machines have two compartments, each of which is held at a different temperature, one of which is for perishable food. The compartment containing perishable food must be controlled by a health control cut-out function.
5	Confectionery and snack machines that are not refrigerated	These machines store product at ambient temperature without cooling
6	Combination machines consisting of two different categories of machine in the same housing and powered by one chiller.	The machines usually consist of two machine modules separated by a vertical panel but could also be two units mounted one above the other. Typical combination machine would consist of a closed fronted bottle machine and a glass fronted snack machine, or two separate food and snack machines.

The following types of vending machine are excluded from this standard:

— drink machines dispensing hot and/or cold drinks into cups;

— machines with a food heating function;

— vending machines operating at temperatures below 0 °C; or

— any machine including one or more of these compartments.

The machine manufacturer shall provide adequate information to confirm that the machine is suitable for testing according to this specification and that it can perform the tests as required, if necessary with minimum intervention by manufacturers' technical staff.

Information shall be provided by completing the test report in Annex B.