SLOVENSKI STANDARD
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Household electric thermal storage room heaters - Methods for measuring performance

Household electric thermal storage room heaters - Methods for measuring performance

Elektrische Raumheizgeräte für den Hausgebrauch - Verfahren zur Messung der Gebrauchseigenschaften

Appareils électrodomestiques de chauffage à accumulation des locaux - Méthodes de mesure de l'aptitude à la fonction

Ta slovenski standard je istoveten z: EN 60531:2000

ICS:

97.100.10 Elektriļ ni grelniki Electric heaters

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EUROPEAN STANDARD

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Household electric thermal storage room heaters Methods for measuring performance (IEC 60531:1999, modified)

Appareils électrodomestiques de chauffage à accumulation des locaux Méthodes de mesure de l'aptitude à la fonction (CEI 60531:1999, modifiée)

Elektrische Raumheizgeräte für den Hausgebrauch - Verfahren zur Messung der Gebrauchseigenschaften (IEC 60531:1999, modifiziert)

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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 CENELEC member into its own language and notified to the Central Secretariat has the same status as the official versions.

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CENELEC

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

Central Secretariat: rue de Stassart 35, B - 1050 Brussels

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Foreword

The text of the International Standard IEC 60531:1999, prepared by SC 59C, Heating appliances, of IEC TC 59, Performance of household electrical appliances, together with the common modifications prepared by the Technical Committee CENELEC TC 59X, Consumer information related to household electrical appliances, was submitted to the formal vote and was approved by CENELEC as EN 60531 on 2000-04-01.

Significant technical differences made by the common modifications are:

a) the limits of the categories concerning heat retention;
b) introduction of a modified method for calculating the heat retention;
c) introduction of the energy factor;
d) additional information at the point of sale.

The following dates were fixed:

- latest date by which the EN has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 2001-04-01
- latest date by which national standards conflicting with the EN have to be withdrawn (dow) 2003-04-01

Annexes designated "normative" are part of the body of the standard.
Annexes designated "informative" are given for information only.
In this standard, annexes A, B and ZA are normative and annexes C, D, E and F are informative.
Annex ZA has been added by CENELEC.

Endorsement notice

The text of the international Standard IEC 60531:1999 was approved by CENELEC as a European Standard with agreed common modifications as given below.

COMMON MODIFICATIONS

4.3 According to heat retention

Replace the text by:

Heat retention in %	Category
≥ 20 and < 35	1
≥ 35 and < 50	2
≥ 50	3

NOTE If the heat retention is less than 20 %, the appliance is not considered to be a storage room heater.

10 Heat retention

Replace the text by:

The ability of the storage heater to retain heat is determined.

The test of clause 9 is repeated. However the storage heater is kept in the minimum discharge condition throughout the test and the test period may be different from 24 h.

The heat output is measured throughout the cycle of operation. The energy discharged by the storage heater during a discharge period of 16 h is calculated by integrating the heat output during this period, commencing when the charging supply is switched off.

The heat content η_{16} of the storage heater at the end of the discharge period is determined and expressed as a percentage of the maximum heat content η_{max} at the end of the charging period.

This percentage is stated as the heat retention.

The heat retention is calculated by: $\frac{\eta_{16}}{\eta_{max}} \times 100$ [in %]

NOTE The result of the heat retention calculated according to this method is nearly independent of the rated wattage of the heating elements which can be chosen from a given range for the same heater housing.

Annex C

Add the following subclause:

C.2.6 Energy factor

The energy balance point, determined in C.2.5, can be used to establish the energy factor f_s. This factor depends on the daily charge program and can be used for selecting the appropriate heater if the factor is provided by the utility.

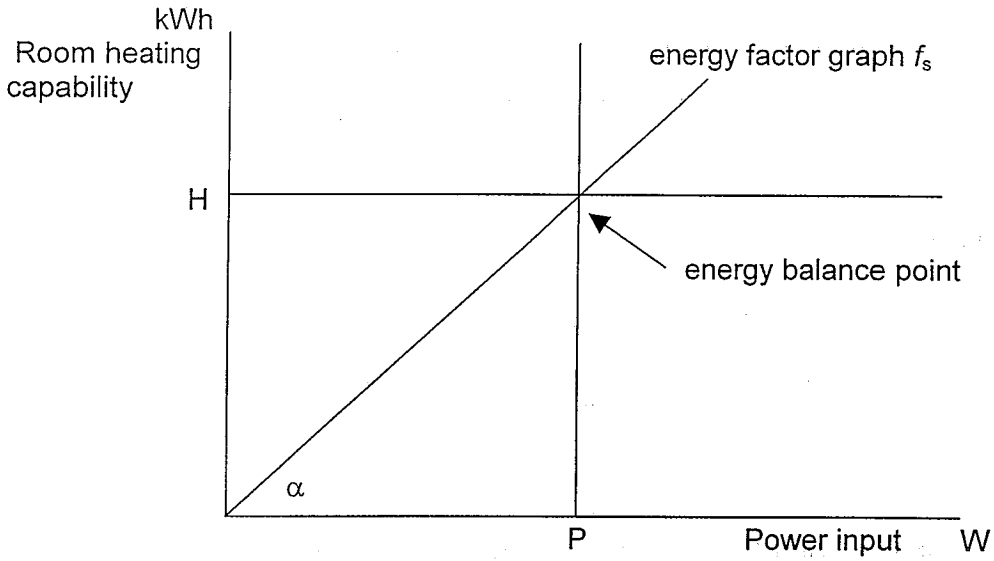

Figure C.10 - Example of energy factor f_s

The energy factor f_s can also be calculated from the formula:

$$f_s = \frac{H}{Q}$$

The angle α can be determined from the formula:

$$\tan \alpha = f_s \frac{Q}{P}$$

Annex D

Add the following items:

- Rated continuous charging period
- Provision for external charge control

Annex ZA (normative)

Normative references to international publications with their corresponding 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 (including amendments).

NOTE When an international publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

Publication	Year	Title	EN/HD	Year
IEC 60584-1	1995	Thermocouples Part 1: Reference tables	EN 60584-1	1995

NORME INTERNATIONALE

INTERNATIONAL STANDARD

CEI
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Deuxième édition
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Appareils électrodomestiques de chauffage à accumulation des locaux– Méthodes de mesure de l'aptitude à la fonction

Household electric thermal storage room heaters – Methods for measuring performance

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For price, see current catalogue

CONTENTS

INTERNATIONAL ELECTROTECHNICAL COMMISSION

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HOUSEHOLD ELECTRIC THERMAL STORAGE ROOM HEATERS – METHODS FOR MEASURING PERFORMANCE

FOREWORD

1) The IEC (International Electrotechnical Commission) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of the IEC is to promote international co-operation on all questions concerning standardization in the electrical and electronic fields. To this end and in addition to other activities, the IEC publishes International Standards. Their preparation is entrusted to technical committees; any IEC National Committee interested in the subject dealt with may participate in this preparatory work. International, governmental and non-governmental organizations liaising with the IEC also participate in this preparation. The IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.
2) The formal decisions or agreements of the IEC on technical matters express, as nearly as possible, an international consensus of opinion on the relevant subjects since each technical committee has representation from all interested National Committees.
3) The documents produced have the form of recommendations for international use and are published in the form of standards, technical reports or guides and they are accepted by the National Committees in that sense.
4) In order to promote international unification, IEC National Committees undertake to apply IEC International Standards transparently to the maximum extent possible in their national and regional standards. Any divergence between the IEC Standard and the corresponding national or regional standard shall be clearly indicated in the latter.
5) The IEC provides no marking procedure to indicate its approval and cannot be rendered responsible for any equipment declared to be in conformity with one of its standards.
6) Attention is drawn to the possibility that some of the elements of this International Standard may be the subject of patent rights. The IEC shall not be held responsible for identifying any or all such patent rights.

International Standard IEC 60531 has been prepared by subcommittee 59C: Heating appliances, of IEC technical committee 59: Performance of household electrical appliances.

This second edition cancels and replaces the first edition published in 1976 and constitutes a technical revision.

The text of this standard is based on the following documents:

FDIS	Report on voting
59C/85/FDIS	59C/86/RVD

Full information on the voting for the approval of this standard can be found in the report on voting indicated in the above table.

Annexes A and B form an integral part of this standard.

Annexes C, D, E and F are for information only.

HOUSEHOLD ELECTRIC THERMAL STORAGE ROOM HEATERS – METHODS FOR MEASURING PERFORMANCE

1 Scope

This International Standard applies to electric storage heaters having a daily operating cycle and intended to heat the room in which they are located.

NOTE 1 – This standard does not apply to heating appliances incorporated in the building structure, to central heating systems or to floor heating installations.

NOTE 2 – If an appliance is intended to be operated as a storage heater or as a direct-acting room heater, it is also tested in accordance with IEC 60675 [1]* .

This standard defines the main performance characteristics of storage heaters and specifies methods for measuring these characteristics, for the information of users.

NOTE 3 – Information which may be of interest to the consumer is listed in annex D.

This standard does not specify values for performance characteristics.

NOTE 4 – This standard does not deal with:

– safety requirements [2];

– acoustical noise [3].

2 Normative reference

The following normative document contains provisions which, through reference in this text, constitute provisions of this standard. At the time of publication, the edition indicated was valid. All normative documents are subject to revision, and parties to agreements based on this standard are encouraged to investigate the possibility of applying the most recent edition of the normative document indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

IEC 60584-1:1995, *Thermocouples – Part 1: Reference tables*

3 Definitions

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

3.1
storage heater
heater which stores heat obtained from electric energy by charging an accumulating core before a heat demand in a room occurs, the heat being discharged at any time

* Figures in square brackets refer to the bibliography in annex F.

3.2
minimum discharge condition
condition under which the appliance is operated, the means for controlling the heat output, such as flaps and fans, being set at the lowest position

3.3
maximum discharge condition
condition under which the appliance is operated, the means for controlling the heat output, such as flaps and fans, being set at the highest position, any boost position being ignored

NOTE – A boost position is a setting of a control for occasional use which results in a higher temporary fan speed.

3.4
average room temperature
arithmetic average of the maximum and minimum room temperatures for a setting of the ambient temperature thermostat

3.5
ambient temperature thermostat
thermostat, sensitive to the room temperature and adjustable by the user, with at least the sensing part incorporated in the heater

3.6
amplitude
difference between the maximum and the minimum room temperatures for a setting of the ambient temperature thermostat

3.7
drift
difference between the average room temperatures obtained at different charge levels for a setting of the ambient temperature thermostat

4 Classification

4.1 According to type

a) storage heater without a direct-acting heating function;

b) storage heater with a direct-acting function manually controlled;

c) storage heater with a direct-acting function automatically controlled.

4.2 According to the control of heat output

a) storage heater without heat output control;

b) storage heater with the heat output controlled by flaps or similar means;

c) storage heater with the heat output controlled by a fan.