



# SLOVENSKI STANDARD SIST EN 50408:2009

01-januar-2009

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Household and similar electrical appliances - Safety - Particular requirements for cab heaters for vehicles

Sicherheit elektrischer Geräte für den Hausgebrauch und ähnliche Zwecke - Besondere Anforderungen für Fahrzeugkabinenheizungen

Appareils électrodomestiques et analogues - Sécurité - Règles particulières pour les appareils de chauffage d'habitacles de véhicules

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Ta slovenski standard je istoveten z: **EN 50408:2008**

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**ICS:**

43.040.60	Karoserije in deli karoserij	Bodies and body components
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**SIST EN 50408:2009**

**en,fr,de**

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EUROPEAN STANDARD  
NORME EUROPÉENNE  
EUROPÄISCHE NORM

**EN 50408**

August 2008

ICS 43.040.60

English version

**Household and similar electrical appliances -  
Safety -  
Particular requirements for cab heaters for vehicles**

Appareils électrodomestiques  
et analogues -  
Sécurité -  
Règles particulières pour les appareils  
de chauffage d'habitacles de véhicules

Sicherheit elektrischer Geräte  
für den Hausgebrauch  
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This European Standard was approved by CENELEC on 2008-04-16. 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.

Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Central Secretariat or to any CENELEC 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 CENELEC member into its own language and notified to the Central Secretariat has the same status as the official versions.

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

**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**

## Foreword

This European Standard was prepared by CENELEC BTWG 100-1, Cab heaters for vehicles.

The text of the draft was submitted to the formal vote and was approved by CENELEC as EN 50408 on 2008-04-16.

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) 2009-05-01
- latest date by which the national standards conflicting with the EN have to be withdrawn (dow) 2011-05-01

This European Standard is to be used together with EN 60335-2-30, Household and similar electrical appliances - Safety - Part 2-30: Particular requirements for room heaters. It was established on the basis of EN 60335-2-30:2003, which is to be used together with EN 60335-1:2002. Amendments and revisions of EN 60335-1 and EN 60335-2-30 have also to be taken into account and the dates when such changes become applicable will be stated in the relevant amendment or revision of these standards.

This standard supplements or modifies the corresponding clauses of EN 60335-2-30, so as to convert it into the European Standard: Safety requirements for cab heaters for vehicles.

NOTE 1 The following numbering system is used:

- subclauses, notes, tables and figures that are numbered starting from 101 are additional to those in EN 60335-1;
- subclauses, notes, tables and figures that are additional to those in EN 60335-2-30 are numbered starting from 201 and are prefixed with the letter Z;
- additional annexes to those in EN 60335-2-30 are lettered AAA, BBB, etc.

NOTE 2 The following print types are used:

- requirements: in roman type;
- *test specifications: in italic type;*
- notes: in small roman type.

Words in **bold** in the text are defined in Clause 3. When a definition concerns an adjective, the adjective and the associated noun are also in bold.

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## 1 Scope

*Addition:*

This standard is intended to be used together with EN 60335-2-30:2003 and supplements or modifies the corresponding clauses of that standard.

*Replace the second paragraph and NOTE 101 of this clause by:*

This standard deals with the safety of electric heaters for vehicles, intended for the heating of driver and passenger compartments of motor vehicles, their **rated voltage** being not more than 250 V for single-phase appliances. Heaters intended especially for the heating of caravans are not covered by this standard.

NOTE 101 Void.

*Delete the first indent of NOTE 102.*

## 2 Normative references

*Addition:*

<u>Publication</u>	<u>Year</u>	<u>Title</u>
EN 60068-2-6		Environmental testing – Part 2: Tests – Test Fc: Vibration (sinusoidal) (IEC 60068-2-6)
EN 60335-2-30	2003	Household and similar electrical appliances – Safety Part 2-30: Particular requirements for room heaters (IEC 60335-2-30:2002, modified)

## 3 Definitions

*Addition:*

### 3.Z201

#### **cab heater**

appliance for the heating of driver and passenger compartments of motor vehicles

**Cab heaters** may be portable or intended to be permanently mounted

NOTE If not otherwise stated, **cab heaters** shall be tested as portable combined appliances and/or combined appliances for permanent mounting.

## 4 General requirements

This clause of EN 60335-2-30 is applicable.

## 5 General conditions for the test

### 5.3 *Addition:*

*The tests of 21.101 with exception of the spring hammer test are carried out before the tests of Clause 8.*

## 6 Classification

This clause of EN 60335-2-30 is applicable.

## 7 Marking and instructions

### 7.1 Addition:

**Cab heaters** shall on a clearly visible place have an additional marking in the official language(s) of the country where the heater is sold, stating:

Cab heater

If the **rated power** is related to another ambient temperature than  $20\text{ °C} \pm 5\text{ °C}$ , this temperature shall be clearly stated together with the **rated power**.

### 7.12 Addition:

The instructions for use shall include information on intended mounting.

The instructions for use shall state the shortest permissible distance between the heater outlet and combustible material and include a text with the following meaning:

Any instructions for mounting, installation and use of cab heaters provided by the manufacturer of the car shall also be followed.

For **cab heaters** not delivered with cord and plug it shall be stated that for the connection between the cab heater and the outlet in the compartment the cord shall be at least a rubber cable (H05RN-F, H05RR-F, H05BB-F or equivalent).

Any installation in the vehicle shall be properly made, comprising products and material intended for installation in vehicles.

NOTE It should be ensured that cables and cords are not damaged by doors, bonnet or other edges of the vehicle.

## 8 Protection against access to live parts

This clause of EN 60335-2-30 is applicable.

## 9 Starting of motor-operated appliances

*Addition:*

**Cab heaters** incorporating motors shall be able to start at low temperatures.

*Connect the appliance to **rated voltage** at  $-25\text{ °C}$  after the appliance has been stored at this temperature for 24 h.*

*A **self-resetting thermal cut-out** is allowed to operate twice before the fan starts.*

## 10 Power input and current

### 10.1 Addition:

The test can be carried out at an ambient temperature other than  $20\text{ °C} \pm 5\text{ °C}$ .

## 11 Heating

### 11.2 Replace the replacement to this clause by:

For this test is used a special test corner according to Figure Z201 and made of dull black-painted plywood approximately 20 mm thick. All measures given in the figure are internal. The wall A can be positioned at different distances from the far end of the special test corner.

For the tests the special test corner is placed in a test corner, as described in EN 60335-1, with wall B and the far end facing the walls of the test corner. The test corner as described in EN 60335-1 shall be at least 470 mm wide, 760 mm deep and 470 mm high.

NOTE Wall B of the special test corner, as well as its bottom, can be open to facilitate access before and after test. During test the special test corner is placed in the test corner in such a way, that it becomes closed by the walls and floor of the test corner, leaving only the opening towards wall A open.

The **cab heater** is placed in the special test corner in the most unfavourable position according to the manufacturer's instructions, if it will fit into the special test corner, and with the distance  $L = 0\text{ mm}$ . The shortest distance to combustible material shall however not be less than stated in the manufacturer's instructions and the wall A can be moved to increase  $L$  to a maximum distance  $L = 220\text{ mm}$ .

If the manufacturer has not supplied any instructions for the placing of the **cab heater** or if the heater cannot fit in the special test corner, the **cab heater** is placed in the most unfavourable position on the floor of the special test corner. Heaters containing PTC heating elements are placed away from the walls if this will lead to higher temperatures.

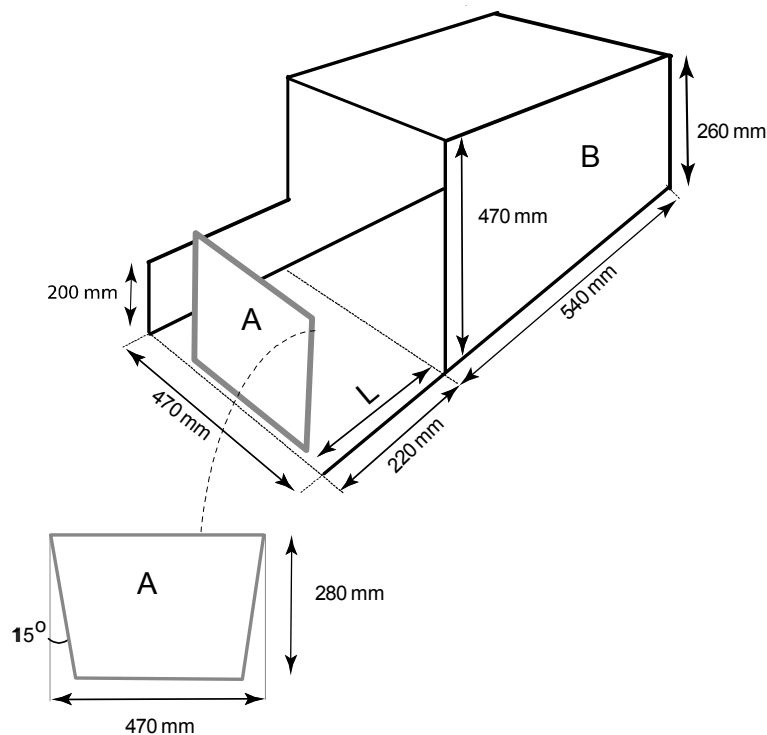


Figure Z201 - Special test corner

**11.8 Addition:**

For this purpose the **cab heater** is considered as an "other appliance".

Replace Table 101 with Table Z201.

**Table Z201 - Maximum temperature rises for surfaces**

<b>Surface</b>	<b>Temperature rise K</b>
<i>Parts of the heater accessible to ambient air and which are accessible to test probe B of EN 61032.</i>	90
<i>All surfaces that are curved with a radius not exceeding 10 mm or that are inclined at greater than 60° to the horizontal and that, in addition, are not accessible to test probe B of EN 61032.</i>	No limit
<i>Other parts of the <b>cab heater</b> accessible to ambient air.</i>	275

**12 Void****13 Leakage current and electric strength at operating temperature**  
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This clause of EN 60335-2-30 is applicable.

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**14 Transient overvoltages**  
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This clause of EN 60335-2-30 is applicable.

**15 Moisture resistance****15.3 Modification:**

**Cab heaters** shall be kept in the humidity cabinet for 7 days (168 h).

**16 Leakage current and electric strength**

This clause of EN 60335-2-30 is applicable.

**17 Overload protection of transformers and associated equipment**

This clause of EN 60335-2-30 is applicable.

**18 Endurance**

This clause of EN 60335-2-30 is applicable.



## 19 Abnormal operation

### 19.1 Addition:

Compliance is checked also by the following tests:

The **cab heater** is positioned with the outlet air directed at a dull black-painted plywood wall placed at a distance of 10 cm and is connected to the voltage specified in 11.6 and is left operating until steady state has been reached or a **non self-resetting thermal cut-out** has operated.

Any thermostats are shunted during the test.

During the test the temperature rise at the test wall shall not exceed 65 K.

The distance to the test wall is measured as the shortest distance between the wall and the outlet **fireguard**.

The heater is covered, totally or partially, with a piece of cloth and is tested as specified in 19.1.

The piece of cloth used shall have a thickness of 25 mm and a mass of  $(4,0 \pm 0,4)$  kg/m<sup>2</sup>. It shall be placed without pressure on the entire front and top of the heater, reaching down at the back of the heater to a distance of a fifth of the height of the heater, as measured from its top or, if less, as far as wall brackets or guards allow without being pushed. If the design of the heater, however, allows fabrics to make contact with the back of the heater between or beside wall brackets, the piece of cloth shall cover the entire back of the heater between or beside wall brackets.

### 19.107 Add at the end of the note:

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As an alternative, the motor speed can be reduced by applying a mechanical force at the shaft, increased in suitable steps.

### 19.109 Addition:

The test is repeated but with the **cab heater** positioned near to a dull black-painted plywood wall and with the outlet air directed at the wall and left operating until steady state has been reached or a **non self-resetting thermal cut-out** has operated.

During the test the temperature rise at the test wall shall not exceed 150 K.

## 20 Stability and mechanical hazards

This clause of EN 60335-2-30 is applicable.

## 21 Mechanical strength

Addition:

**21.Z201 Cab heaters** and any accessories shall withstand vibrations liable to occur during normal use. If the mounting instructions for the **cab heater** give several mounting options, the test shall be carried out in the least favourable mounting position.

Compliance is checked by carrying out the vibration tests specified in EN 60068-2-6 under the following conditions: