



# SLOVENSKI STANDARD

## SIST EN 60095-2:1997

01-februar-1997

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**Svinčeno-kislinske zagonske baterije - 2. del: Mere baterij ter mere in označevanje priključkov (IEC 60095-2:1984, prilagojen)**

Lead-acid starter batteries -- Part 2: Dimensions of batteries and dimensions and marking of terminals

Blei-Starterbatterien -- Teil 2: Maße von Batterien sowie Maße und Kennzeichnung von Anschlüssen

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Batteries d'accumulateurs de démarrage au plomb -- Partie 2: Dimensions des batteries et dimensions et marquage des bornes

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**Ta slovenski standard je istoveten z: EN 60095-2:1993**

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**ICS:**

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| 29.220.20 | Kislinski sekundarni člani in baterije | Acid secondary cells and batteries |
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EUROPEAN STANDARD  
NORME EUROPÉENNE  
EUROPÄISCHE NORM

**EN 60095-2**

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Descriptors: Starter batteries, lead-acid batteries, electric terminals, dimensions, marking

English version

**Lead-acid starter batteries**  
**Part 2: Dimensions of batteries and dimensions and**  
**marking of terminals**  
(IEC 95-2:1984, modified)

Batteries d'accumulateurs de  
démarrage au plomb  
Deuxième partie: Dimensions des  
batteries et dimensions et marquage  
des bornes  
(CEI 95-2:1984, modifiée)

Blei-Starterbatterien  
Teil 2: Maße von Batterien sowie  
Abmessungen und Kennzeichnung  
von Anschlüssen  
(IEC 95-2:1984, modifiziert)

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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 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.

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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 CENELEC questionnaire procedure, performed for finding out whether or not the International Standard IEC 95-2:1984 could be accepted without textual changes, has shown that some common modifications were necessary for the acceptance as European Standard.

The reference document, together with the common modifications prepared by the CENELEC BTTF 62-1 was submitted to the CENELEC members for formal vote.

The text of the draft was ratified by CENELEC as EN 60095-2 on 23 September 1991 and was editorially revised by CENELEC/TC 21X before circulation to the National Committees.

The common modifications are indicated by a vertical line in the left margin of the text.

The following dates are applicable:

- latest date of publication of  
an identical national standard (dop) 1993-06-01
- date of withdrawal of  
conflicting national standards (dow) 1993-06-01

Other IEC publication quoted in this standard:

IEC 417: Graphical symbols for use on equipment - Index, survey and compilation of single sheets; endorsed by CENELEC as HD 243.

**ITeH STANDARD PREVIEW**

NOTE: The content of amendment 2 to IEC 95-2 (not yet published) is covered by Section SIX of this European Standard.

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## Lead-acid starter batteries

### Part 2: Dimensions of batteries and dimensions and making of terminals

#### SECTION ONE — GENERAL

### 1 Scope

This standard is applicable to lead-acid batteries with a nominal voltage of 12 V, used primarily as a power source for starting and ignition of internal combustion engines, lighting and also for auxiliary equipment of internal combustion engine vehicles. These batteries are commonly called “Starter batteries”.

This standard is not applicable to batteries for other purposes, for example the starting of railcar internal combustion engines.

### 2 Object

The object of the present standard is to specify:

- the main dimensions of starter batteries of three standard series;
- the location of the positive and negative terminals with respect to the fastening system;
- the dimensions of tapered terminals of starter batteries;
- the marking of the polarity.

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#### SECTION TWO — MAIN DIMENSIONS OF BATTERIES

### 3 General

#### 3.1 *Standard series*

Starter batteries in accordance with this standard shall belong to one of the following three series:

L, LB, E.

#### 3.2 *Wide series*

The first two series have the same width (L = large) but different height:

L = standard height

LB = low configuration

#### 3.3 *Narrow series*

The narrow series is designated by the letter E.

#### 3.4 *Preferred series*

Of these three series the series L (large, standard height) shall be considered as the preferred series.

#### 4 Location of terminals

The arrangement of positive and negative terminals with respect to the position of the notches (see 6.2) shall be in accordance with figure 1.

#### 5 Handles, if any

Batteries in accordance with this standard may have handles. The projection “c” of handles (see figure 1) shall not exceed the values in table 1. The handles shall be capable of being folded or removed so as not to interfere with the other dimensions.

#### 6 Standard fastening

##### 6.1 Ledges on long sides

All batteries in accordance with this standard (series L, LB and E) shall have, on the lower part, ledges (or recesses forming ledges) for fastening over the full length of the long sides, forming an integral part of the battery case and allowing the battery to be fixed by means of the bottom of the case.

##### 6.2 Notches

To secure correct positioning of the battery on the support, the ledge on the side of the terminals shall have location notches, the ledge of the opposite side shall also have notches.

The hold-down clamps of the support shall match with the ledges and the notches to provide secure fastening in either direction.

#### 7 Main dimensions of batteries

The main dimensions of the batteries are represented by symbols as indicated on the drawing in figure 1.

This schematic drawing does not represent any design details of the top of the battery.

The dimensions corresponding to the symbols below shall be in accordance with table 1.

Symbols used:

- $b$  = overall width above ledges
- $h$  = overall height including lid, plugs and terminals, but without handles
- $l$  = overall length without handles
- $b_1$  = width across ledges
- $l_1$  = length at battery base
- $c$  = maximum projection of handles, if any

#### 8 Dimensions and arrangement of ledges and notches

The shape and dimensions of ledges and of notches shall be in accordance with figures 3a and 3b (details X and Y of figure 1).

The positions of ledges and notches are indicated in figure 1 and subclause 6.2.

## SECTION THREE — SUPPLEMENTARY DIMENSIONS OF BATTERIES WITH PERMISSIBLE ALTERNATIVE FASTENING

### 9 General concerning permissible alternative fastening

Starter batteries having the main dimensions of the standard series L and E may, as alternatives to the standard fastening, be fixed to the vehicles either:

- by additional lugs at the short sides (letter S added to the designation of the standard series: LS, ES), see clause 10;
- by means of a hold-down device engaging with the upper part of the battery (for example, a metal frame), connected to the support platform (letter T added to the designation of the standard series: LT, ET), see clause 11.

In either case, such batteries shall have on the long side ledges in accordance with clause 6.

### 10 Fastening by lugs

#### 10.1 Lugs

Batteries for fastening at the short sides (see clause 9) series LS and ES shall have lugs at the bottom of the short sides, forming an integral part of the battery case. The shape and dimensions of the lugs shall correspond to figures 2 and 3b.

#### 10.2 Positioning of the battery

To secure correct positioning of the battery on the support, notches shall be provided in the lugs; the lug on the side of the negative terminal shall have one notch at the centre, the lug on the side of the positive terminal shall have two notches, the positions of which are indicated in figure 2.

The shape and dimensions of the notches shall correspond to figures 3a and 3b.

The hold-down clamps of the support shall match with the lugs and the notches to provide secure fastening in either direction.

#### 10.3 Supplementary dimension of battery with fastening by lugs

The total length across the lugs  $l_2$ , see figure 2, of batteries of series LS and ES shall be in accordance with the values in table 2.

### 11 Fastening by upper part of the case

#### 11.1 Arrangement of the upper part of the case

Batteries for fastening by the upper part of the case in accordance with clause 9, series LT and ET, shall be designed so that the cover provides appropriate support for the hold-down device, for instance a metal frame.

#### 11.2 Supplementary dimension of batteries with fastening by upper part of the case

The height of the upper surface  $h_1$ , supporting the hold-down device, of series LT and ET above the bottom of the case (see figure 2) shall be in accordance with the values in table 3.



## SECTION FOUR — DIMENSIONS OF BATTERY TERMINALS

**12 Dimensions of the positive terminal**

The tapered positive terminal shall be in accordance with figure 4.

**13 Dimensions of the negative terminal**

The tapered negative terminal shall be in accordance with figure 5.

SECTION FIVE — MARKING OF THE POLARITY OF BATTERIES  
AND DIMENSIONS OF CORRESPONDING SYMBOLS**14 Marking of the polarity of terminals**

Batteries shall carry the marking of polarity, at least of the positive terminal.

- 14.1 This marking shall take the form of the symbol + , indented or in relief, either on the upper surface of the positive terminal or on the lid adjacent to the positive terminal.

The symbol used for marking the positive terminal shall be in accordance with symbol 5005-a: Plus; positive polarity of IEC Publication 417: Graphical Symbols for Use on Equipment. Index, Survey and Compilation of the Single Sheets. The actual value of the dimensions "a" should be equal to or greater than 5 mm.\*

- 14.2 If the negative terminal is also marked, the symbol used shall be in accordance with symbol 5006-a: Minus; negative polarity of IEC Publication 417; this marking shall also be placed, either on the upper surface of the negative terminal or on the lid adjacent to the negative terminal. The size of the negative marking shall correspond to that of the positive marking.

## SECTION SIX — HANDLING OF STARTER BATTERIES BY ROBOTS

**15 Grip-ledges**

If grip-ledges are specified for series L and LB, they shall comply with the dimensions and positions shown in figure 6.

Figure 6a corresponds to series L. In figure 6a, the number of grip-ledges is 4 on the long sides.

Figures 6b and 6c are alternatives, both corresponding to series LB. The number of grip-ledges is 2 or 4 on the long sides.

NOTE: Grip-ledges on the short sides of figures 6a, 6b and 6c are optional.

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\* A dimension "a" of 5 mm corresponds to a total length of each arm of the symbol equal to 5,6 mm.