SLOVENSKI STANDARD
OSIST prEN 60095-2:2004

Svinļ eno-kislinske zagonske baterije (12 V) - 2. del: Mere baterij ter mere in oznaļ evanje priključļ kov

Lead-acid starter batteries (12 V) - Part 2: Dimensions of batteries and dimensions and marking of terminals

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

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

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Functions concerned
Fontions concernées

☒ Safety Sécurité	☐ EMC CEM	☐ Environment Environnement	☐ Quality assurance Assurance qualité

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Titre : CEI 60095-2: Batteries d'accumulateurs de démarrage au plomb (12 V) - Partie 2: Dimensions des batteries et dimensions et marquage des bornes

Title : IEC 60095-2 : Lead-acid starter batteries (12 V) - Part 2: Dimensions of batteries and dimensions and marking of terminals

Note d'introduction
Ce CDV a été préparé par le GT2 du TC21.
La version française sera circulée avec le FDIS.

Introductory note
This CDV has been prepared by WG2 of TC21.
The French version will be circulated with the FDIS.

ATTENTION	ATTENTION
CDV soumis en parallèle au vote (CEI) et à l'enquête (CENELEC)	**Parallel IEC CDV/CENELEC Enquiry**

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CONTENT

INTERNATIONAL ELECTROTECHNICAL COMMISSION

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FOREWORD

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International Standard IEC 60095-2 has been prepared by WG2 of IEC technical committee 21: Secondary cells and batteries.

This standard cancels and replaces IEC 60095-2 Ed.3 published in 1984.

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

FDIS	Report on voting
XX/XX/FDIS	XX/XX/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.

This publication has been drafted in accordance with the ISO/IEC Directives, Part 2.

The committee has decided that the contents of this publication will remain unchanged until 2010. At this date, the publication will be

- reconfirmed;
- withdrawn;
- replaced by a revised edition, or
- amended.

Lead-acid starter batteries (12 V)
Part 2: Dimensions of batteries and dimensions and marking of terminals

1 Scope

This Standard is applicable to lead-acid batteries used for starting, lighting and ignition of passenger automobiles and light commercial vehicles with a nominal voltage of 12 V.

All batteries in accordance with this Standard can be fastened to the vehicle either by means of the ledges around the case or by means of a hold-down device engaging with the lid.

This Standard covers battery sizes of the geographical regions EUROPE, EAST ASIA and NORTH AMERICA.

2 Definitions

None

3 Normative reference

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

IEC 60095-1: LEAD-ACID STARTER BATTERIES - Part 1: General requirements and methods of test

IEC 60417: Graphical Symbols for Use on Equipment

IEC 61429: Marking of secondary cells and batteries with the international recycling symbol ISO 7000-1135

4 General

The following specifications are common to all batteries, not only for the batteries of this standard:

4.1 Marking

4.1.1 Safety labelling

The batteries must be marked in accordance with IEC 60095 Part 1.

4.1.2 Marking of the polarity of terminals

The batteries must be marked with signs for both polarities which have to be placed near the terminals.

4.1.2.1 Marking of positive terminals

This marking shall take the form of the symbol '**+**' either on the upper surface of the positive terminal or on the lid adjacent to the positive terminal.

4.1.2.2 Marking of negative terminals

This marking shall take the form of the symbol '**–**' either on the upper surface of the negative terminal or on the lid adjacent to the negative terminal.

4.1.2.3 Design and dimensions of marking of terminals

The symbols used for marking the terminals shall be in accordance with the IEC Publication 417 symbol 5005 a for the positive and symbol 5006 a for the negative polarity.

Figures 1: Marking of polarity

Permissible are 0,3 – 0,5 mm intended or recessed.

4.2 Recycling

4.2.1 Recycling of lead

The batteries must be marked with the recycling symbol in accordance with IEC 61429.

4.2.2 Recycling of plastic material

The Marking of plastic moulded parts has to be fixed in the tooling of the battery housing on the lid or on the case e.g. on bottom or on one short wall side near the ledge.

The marking > PP < or > PP/PE < in accordance with ISO 1043 is minimum.

As supplementation is permissible:

- ❖ the recycling symbol (ISO 7000-1135)
- ❖ the material code 7 or 07 and
- ❖ the addition "other".

Figure 2: Marking of polypropylene

The marking shall be achieved by moulding in relief. The recommended thickness is 0,2 – 0,4 mm. The height of the marking characters shall be between 5 and 7 mm.

4.3 Dimensions and design

All dimensions are in millimetres.

Details of the design which are not indicated have to be chosen appropriate. Illustrations, especially of the handles are not obligatory for design.

5 Recommended types used in Europe

The object of this clause is clearly to update the pervious edition of this standard and to introduce an updated version of LS and LBS models. Those updated versions LN and LBN are so designed that they may replace the earlier models LS and LBS. Therefore for new developments only the recommended series LN and LBN shall be used.

This clause specify:

-the main dimensions of starter batteries of the two preferred series LN and LBN;

-the location of the positive and negative terminals with respect to the fastening system;

-the dimensions of tapered terminals of starter batteries;

-the main dimensions and design of the '**S**emi **L**id' (SL);

-the trottoir (M) for fastening on the upper part;

The preferred series LN replace LS and series LBN replace LBS of Annex A.

5.1 Recommended Types LN and LBN

Starter batteries in accordance with this part of the standard are marked with LN and LBN (N = new). Both battery series have the same width (L = large) but different height:

LN = standard height (H = 190 mm)

LBN = low configuration (H = 175 mm)

Of the two series, the model LN (large, standard height, new) shall be considered as the most preferred series.

5.2 Main dimensions of batteries

The main dimensions of the batteries are represented by symbols as indicated on the drawings. These schematic drawings do not represent any design details of the top of the battery.

The dimensions corresponding to the symbols below shall be in accordance with Figure 3, Figure 4, Figure 5, Table 2 and Table 3.

Symbols used:

a_1 = Overall length at the battery base with ledges
a_2 = Length at the battery base without ledges
a_3 = Length at battery lid
H = Overall height including lid, plugs and terminals
h = Height of the upper surface M, supporting the hold-down device
a_4 = Distance of the inside notches;
a_5 = Distance between terminal and the edges of the lid at the short side. (Figure 3)
a_6 = Distance of the robotic-grips-segments (see Figure 11 and Table 4)

5.3 Handles

5.3.1 General

Batteries with a weight less than 20 kg may have handles. Batteries with a weight of more than 20 kg must have handles.

5.3.2 Handles if any

If the batteries have handles, the handles must be integrated in the lid (see Figure 3).

5.4 Standard fastening on the bottom

All batteries in accordance with this clause shall have ledges for fastening over the length of all sides as an integral part of the battery case and allowing the battery to be fixed by means of the bottom of the case.

5.4.1 Design of ledges

The profile of the ledges must be in accordance with Figure 6. The ledges on the back side shall be reduced (see Figure 3).

5.4.2 Notches

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

To allow a symmetrical rotation for fastening the opposite ledges contain a equal number of notches and to secure correct positioning of the battery on the support the ledges shall have 5 notches on the long sides and 3 notches on the short sides.

5.4.3 Arrangement and dimensions of ledges and notches

The shape and dimensions of ledges and notches shall be in accordance with Figure 3, Figure 4, Figure 5 and Figure 6 (details "X", "Y" and "Z").

5.4.4 General concerning permissible alternative fastening

Starter batteries in accordance with this part of the standard may be fixed to the vehicles either:

- by a bottom hold-down devise at the long side,
- by a bottom hold-down devise at the short side or
- by means of a hold-down device engaging with the upper part of the battery (for example, a metal frame), connected to the trottoir M (see sub-clause 5.5).

In either case, such batteries shall have on the long side a trottoir M.

5.4.5 Fastening by ledges at the short side

For fastening at the short sides only batteries of this standard series are recommended to be used because of reduced tolerances in the length. The shape and dimensions of the ledges and notches shall correspond to Figure 6.

Safety note: The hold-down clamps of support shall match with the ledges and notches to provide secure fastening in both direction and height.

5.5 Fastening by upper part of the battery

Batteries for fastening by the upper part (trottoir M) shall be designed so that the cover provides appropriate support for the hold-down device, for instance a metal frame.

5.6 Location of terminals

The position of positive and negative terminals with respect to the shortened ledge shall be in accordance with Figure 3.

5.7 Dimensions of battery terminals (P)

5.7.1 Dimensions of the positive terminal

The tapered positive terminal shall be in accordance with Figure 7a.

5.7.2 Dimensions of the negative terminal

The tapered negative terminal shall be in accordance with Figure 7b.

5.8 Marking of polarity and dimensions of corresponding symbols

5.8.1 Marking of the polarity of terminals

Batteries in accordance with this part of the standard shall be marked twice in the area of the terminals as indicated (Figure A.1).

The symbol of the polarity shall be in accordance with Clause 4.1.2.

5.9 Special features of lid

The properties of the battery lid are:

5.9.1 Semi bloc lid

That means a block lid which includes the terminals and the plugs so that they are not higher than the lid surface. The special of the Semi bloc lid is the trottoir 'M' (Figure 3).

5.9.2 Spray-water-proof

That means a flat surface and water sealed maintenance openings, if any.

5.9.3 Central degassing

That means a central degassing system and gas outlets on one or both front ends, perpendicular to the battery front end (Figure 8).

5.9.4 Recessed holes

That means recessed holes "K" for optional terminal protection on both sides (Figure 9).

5.9.5 Reversible plugs

That means if reversible plugs 'V' are present, they are relevant to safety of the degassing systems (Figure 10).

5.9.6 Information

For further developments of tooling there have to be foreseen sensor-holes 'S' of 28 mm maximal diameter.

- position of alternatives is demonstrated in Figure 10 in conjunction with the dimensions of Table 1.

- details will be given by the battery makers.