BS EN 50342-4:2009

BSI British Standards

Lead-acid starter batteries —

Part 4: Dimensions of batteries for heavy vehicles

National foreword

This British Standard is the UK implementation of EN 50342-4:2009. It supersedes BS EN 60095-4:1993, which will be withdrawn on 1 July 2012.

The UK participation in its preparation was entrusted to Technical Committee PEL/21, Secondary cells and batteries.

A list of organizations represented on this committee can be obtained on request to its secretary.

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

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English version

Lead-acid starter batteries - Part 4: Dimensions of batteries for heavy vehicles

Batteries d'accumulateurs de démarrage au plomb - Partie 4: Dimensions des batteries pour poids lourds

Blei-Akkumulatoren-Starterbatterien - Teil 4: Maße von Nutzkraftwagen-Batterien

CENELEC

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

Central Secretariat: Avenue Marnix 17, B - 1000 Brussels

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Foreword

This European Standard was prepared by the Technical Committee CENELEC TC 21X, Secondary cells and batteries.

The text of the draft was submitted to the Unique Acceptance Procedure and was approved by CENELEC as EN 50342-4 on 2009-07-01.

This European Standard supersedes EN 60095-4:1993 + A11:1994.

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)	2010-07-01
–	latest date by which the national standards conflicting with the EN have to be withdrawn	(dow)	2012-07-01

Contents

1 Scope and object

This European Standard is applicable to lead-acid batteries used for heavy vehicles.

The object of this European Standard is to specify the European requirements of the main dimensions of starter batteries.

For new and future developments of the above applications it is strongly recommended that only batteries from the “Preferred Types” series be used.

Batteries of the series of “Other Types” exist under several national standards. They have been transferred from the previous standard EN 60095-4.

The preferred types A, B and C are newly introduced and correspond closely to the types D4, D5 and D6 with some differences in tolerances and dimensions.

2 Normative references

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.

EN 50342-1, Lead-acid starter batteries – Part 1: General requirements and methods of test

EN 50342-2, Lead-acid starter batteries – Part 2: Dimensions of batteries and marking of terminals

EN 61429, Marking of secondary cells and batteries with the international recycling symbol ISO 7000-1135 and indications regarding directives 93/86/EEC and 91/157/EEC (IEC 61429)

EN ISO 1043-1:2001, Plastics – Symbols and abbreviated terms – Part 1: Basic polymers and their special characteristics (ISO 1043-1:2001)

IEC 60050-482:2004, International Electrotechnical Vocabulary (IEV) – Part 482: Primary and secondary cells and batteries

IEC 60417 database, Graphical symbols for use on equipment

3 Definitions

For the purposes of this document, the terms and definitions of IEC 60050-482 are applicable.

4 General requirements

4.1 Safety labelling

The batteries shall bear the six coloured safety symbols in accordance with EN 50342-1.

4.2 Marking

The batteries shall be marked with signs for both polarities that have to be positioned near to or on top face of the terminals.

4.2.1 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.

4.2.2 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.

4.2.3 Design and dimensions of marking of terminals

The symbols used for marking the terminals shall be in accordance with IEC 60417, symbol 5005a for the positive polarity and symbol 5006a for the negative polarity.

Figure 1 – Marking of polarity

The polarity symbols may be either indented or embossed by 0,4 mm ± 0,1 mm.

4.2.4 Marking of plastic material

The batteries container and lid shall be marked to identify the type of plastic material by embossing or indenting it into the battery housing.

4.3 Recycling

4.3.1 Recycling of lead

The batteries shall be marked with the recycling symbol and the EC-Symbol of a crossed through rollout container, both in accordance with EN 61429.

4.3.2 Recycling of plastic material

The marking of plastic moulded parts has to be fixed in the tooling of the container e.g. on the bottom or on one short wall side near the ledge.

For the polypropylene/polyethylene copolymer the marking > PP/PE < in accordance with EN ISO 1043-1 is minimum.

As supplementation is permissible

– the international recycling symbol (ISO 7000, symbol 1135),

– the number 7 or 07 for PP/PE, and

– the addition of “other”.

Figure 2 – Marking of polypropylene

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

4.4 Dimensions and design

All dimensions are millimeters.

Details of the design that are not indicated in the generic drawings have to be chosen appropriately.

The illustrations in this standard, especially those of the design of the handles, ribs, ledges, vent caps and their locations are not mandatory.

4.5 Dimensions of terminals

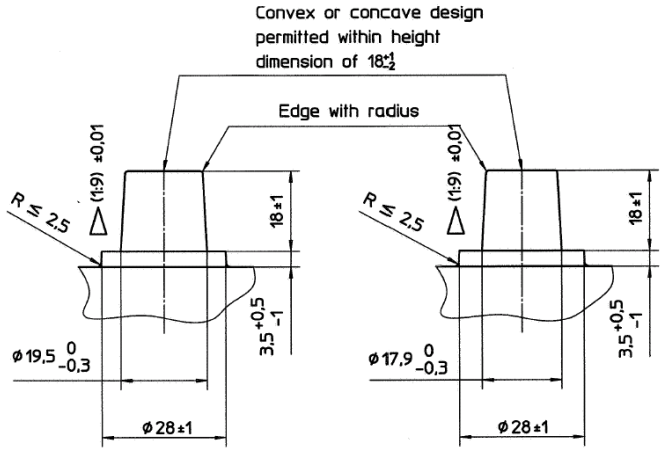

Figure 3 – Dimensions of positive and negative terminals

If the terminal has a base “ring” as shown above, it should conform to the dimensions given in drawing.

5 Preferred types

5.1 General

Handles for manual handling:

Batteries with a weight of more than 20 kg shall have handles.

The figures below show the handles only generically.

It is recommended that the polarity of the terminals is as shown in the figures.

5.2 Dimension table for types D2, A, B, C

The dimensions are indicated in millimeters and they correspond to the figures shown for each type of battery.

Table 1 – Dimensions of batteries "Preferred Types"

Type	l	l_1	l_2	l_3	b	b_1	b_2	h	h_1
D2	349^{0}_{-5}	344^{0}_{-8}	--	--	175^{0}_{-4}	162^{+4}_{-4}	--	235^{0}_{-4}	213^{0}_{-4}
A	513^{0}_{-4}	475^{0}_{-3}	482^{+2}_{-2}	200^{+4}_{-4}	188^{+2}_{-2}	178^{0}_{-2}	86^{+1}_{-1}	223 max.	195^{0}_{-3}
B	513^{0}_{-4}	475^{0}_{-3}	482^{+2}_{-2}	200^{+4}_{-4}	222^{+2}_{-2}	210^{0}_{-2}	102^{+1}_{-1}	223 max.	195^{0}_{-3}
C	518^{0}_{-4}	475^{0}_{-3}	482^{+2}_{-2}	200^{+4}_{-4}	274^{+2}_{-2}	265^{0}_{-2}	130^{+1}_{-1}	242 max.	216^{0}_{-3}

For the types A, B and C:

A minimum clearance with a 27 mm radius concentric to both terminals shall be kept clear for clamping purposes.

For a central degassing the outlets at the lid should be located at the end of the battery away from the terminals. The dimensions of the outlets shall conform to EN 50342-2.

5.3 Figures for types D2, A, B, C

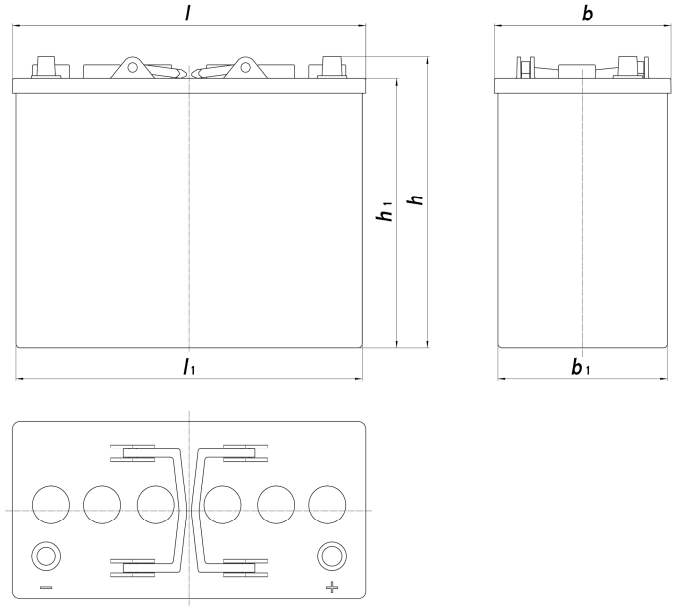

Figure 4 – Type D2

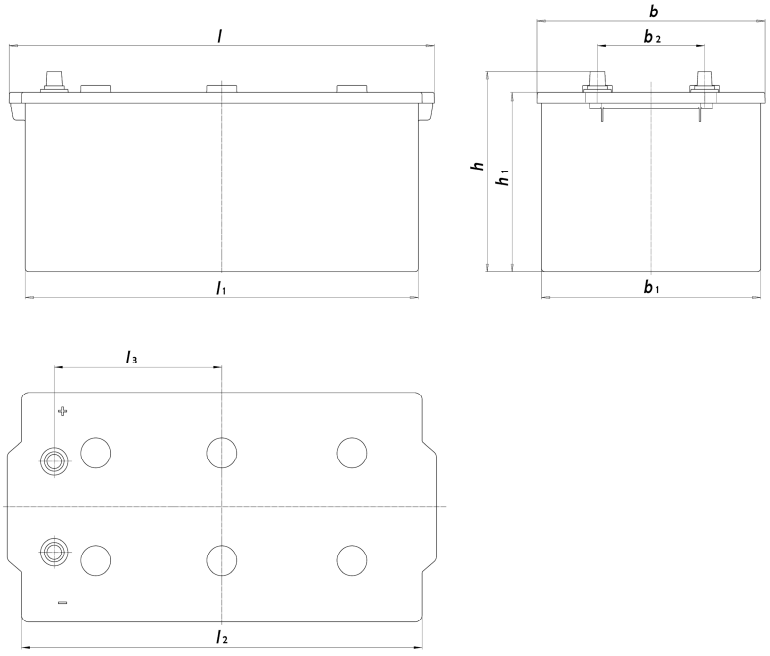

Figure 5 – Types A, B, C

6 Other types

6.1 General

Fastening:

Types D3, D4, D5, D6 and D7 are intended for fastening by the upper part of the battery only. This fastening shall be effected at a level defined by dimensions h_1 in the figures. The configuration shall permit the fitting of an angle-iron frame, both legs of which are 20 mm wide, for the major part of the lid´s four sides.

However, types D1, D2a, D3a, D4a, D5a, D8, D9 and ATM may be fastened either by the base of the battery container or by the upper part of the battery.

Fastening by the base of the container on the long sides is effected by fixing ledges over the full length of the long sides and providing notches to prevent movement of the battery lengthwise as shown.

Fastening by the base of the case on the short sides is effected by fixing lugs with notches to prevent movement of the battery crosswise.

The arrangement of the lugs and notches shall be in accordance with the figures.

6.2 Dimension table for other types

Table 2 – Dimensions of batteries D1, D2a, D3, D3a, D4, D4a, D5a, D6, D7, D8, D9, ATM

Type	l	l_1	l_2	b	b_1	b_2	h	h_1	c	$l + 2c$
D1	$386^{\ 0}_{-5}$	$377^{\ 0}_{-5}$	$390^{\ 0}_{-5}$	$175^{\ 0}_{-4}$	$175^{\ 0}_{-4}$	--	$205^{\ 0}_{-4}$	$184^{\ 0}_{-4}$	10 max.	406 max.
D2a	$349^{\ 0}_{-5}$	$344^{\ 0}_{-8}$	--	$175^{\ 0}_{-4}$	$162^{\ 0}_{-4}$	$175^{\ 0}_{-4}$	$235^{\ 0}_{-4}$	$213^{\ 0}_{-4}$		
D3	$349^{\ 0}_{-5}$	$344^{\ 0}_{-8}$	--	$175^{\ 0}_{-4}$	$162^{\ 0}_{-4}$	--	$285^{\ 0}_{-10}$	$263^{\ 0}_{-4}$		
D3a	$349^{\ 0}_{-5}$	$344^{\ 0}_{-8}$	--	$175^{\ 0}_{-4}$	$162^{\ 0}_{-4}$	$175^{\ 0}_{-4}$	$285^{\ 0}_{-10}$	$263^{\ 0}_{-4}$		
D4	$513^{\ 0}_{-5}$	$475^{\ 0}_{-5}$	--	$189^{\ 0}_{-4}$	$178^{\ 0}_{-4}$	--	$223^{\ 0}_{-8}$	$195^{\ 0}_{-4}$		515 max.
D4a	$513^{\ 0}_{-5}$	$475^{\ 0}_{-5}$	$489^{\ 0}_{-5}$	$189^{\ 0}_{-4}$	--	$175^{\ 0}_{-4}$	$223^{\ 0}_{-8}$	$195^{\ 0}_{-4}$		
D5	$513^{\ 0}_{-5}$	$475^{\ 0}_{-5}$	--	$223^{\ 0}_{-4}$	$210^{\ 0}_{-4}$	--	$223^{\ 0}_{-8}$	$195^{\ 0}_{-4}$		515 max.
D5a	$513^{\ 0}_{-5}$	$475^{\ 0}_{-5}$	$489^{\ 0}_{-5}$	$223^{\ 0}_{-4}$	--	$218^{\ 0}_{-4}$	$223^{\ 0}_{-8}$	$195^{\ 0}_{-4}$		
D6	$518^{\ 0}_{-5}$	$475^{\ 0}_{-5}$	--	$291^{\ 0}_{-4}$	$265^{\ 0}_{-4}$	--	$242^{\ 0}_{-4}$	$216^{\ 0}_{-4}$		520 max.
D7	$286^{\ 0}_{-5}$	$254^{\ 0}_{-7}$	$256^{\ 0}_{-6}$	$270^{\ 0}_{-4}$	$267^{\ 0}_{-4}$	--	$230^{\ 0}_{-4}$	$208^{\ 0}_{-4}$		286 max.
D8	$510^{\ 0}_{-6}$	$476^{\ 0}_{-5}$	$489^{\ 0}_{-5}$	$175^{\ 0}_{-4}$	--	$175^{\ 0}_{-4}$	$235^{\ 0}_{-5}$	$210^{\ 0}_{-5}$		515 max.
D9	$510^{\ 0}_{-6}$	$476^{\ 0}_{-5}$	$489^{\ 0}_{-5}$	$218^{\ 0}_{-5}$	--	$218^{\ 0}_{-5}$	$235^{\ 0}_{-5}$	$210^{\ 0}_{-5}$		515 max.
ATM	$489^{\ 1,5}_{-1,5}$	$481^{\ 1}_{-2}$	--	$168^{\ 1}_{-1}$	$160^{\ 0}_{-2}$	$174^{\ 0}_{-2}$	$209^{\ 0}_{-3}$	$188^{\ 0}_{-3}$	10 max.	515 max.
NOTE As an alternative to the base hold-down features shown for types D2a and D3a, external buttressing of the container side is permitted.										

Where applicable, the dimension z shown in the figures shall be z = 50 mm ± 0,5 mm.

6.3 Figures for other types

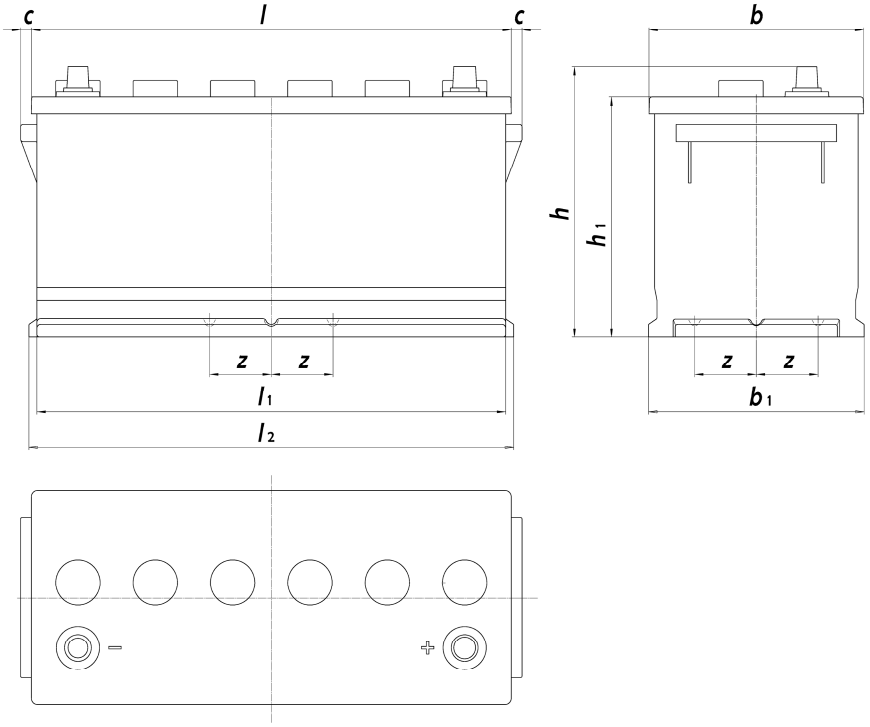

Figure 6 – Type D1

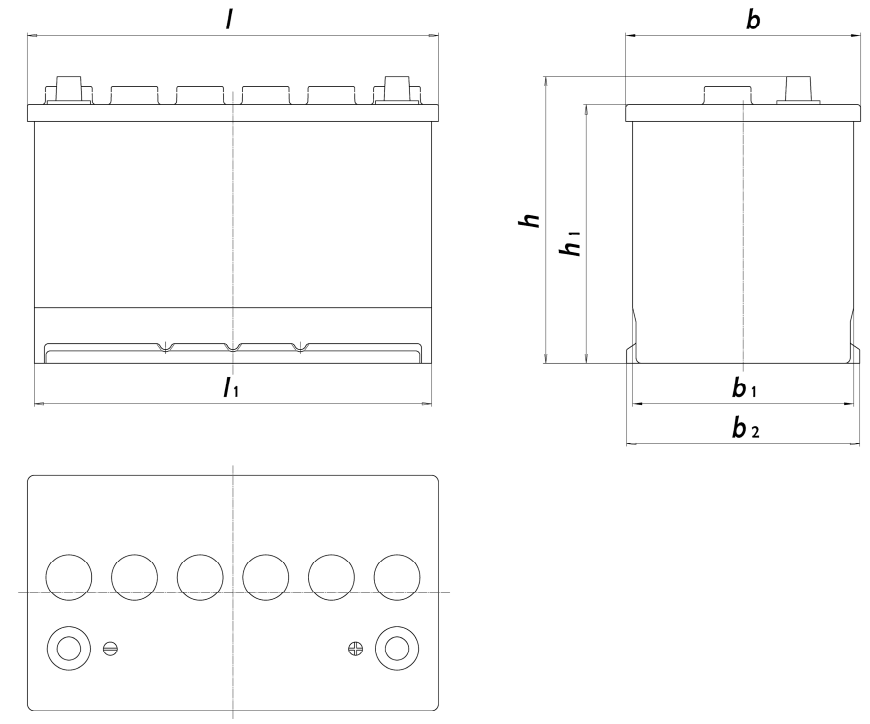

Figure 7 – Types D2a, D3a

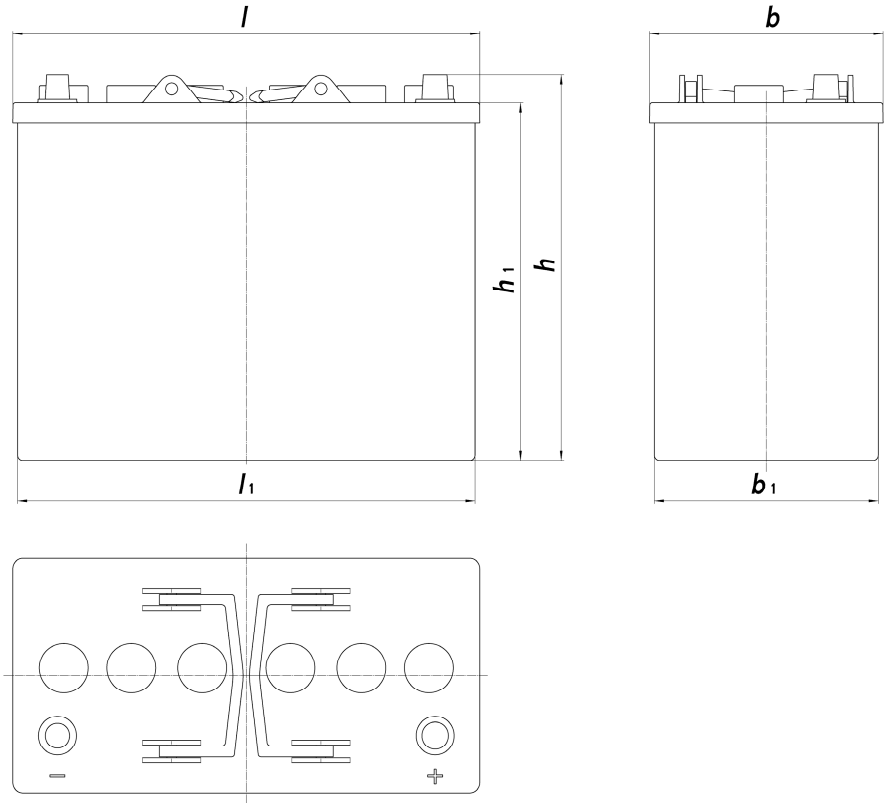

Figure 8 – Type D3

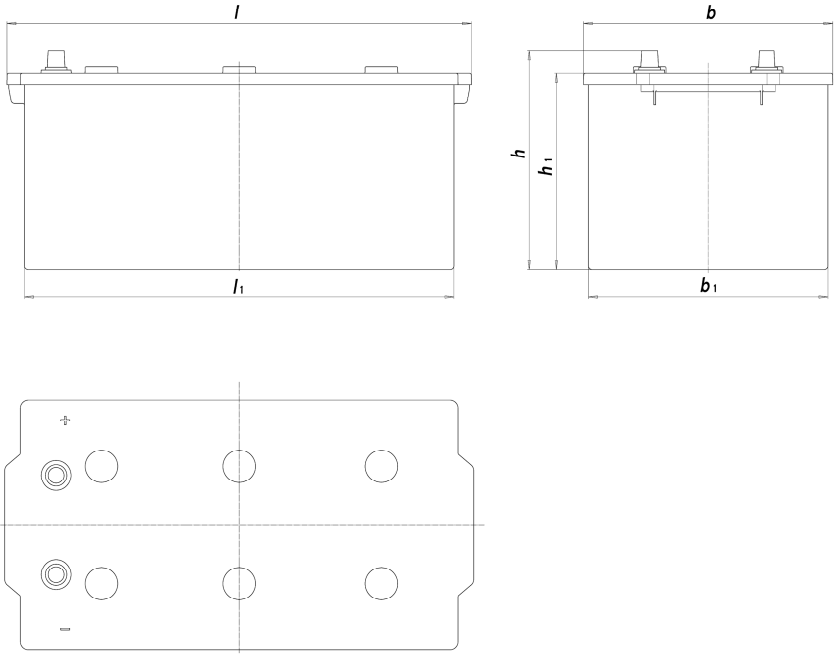

Figure 9 – Types D4, D5, D6

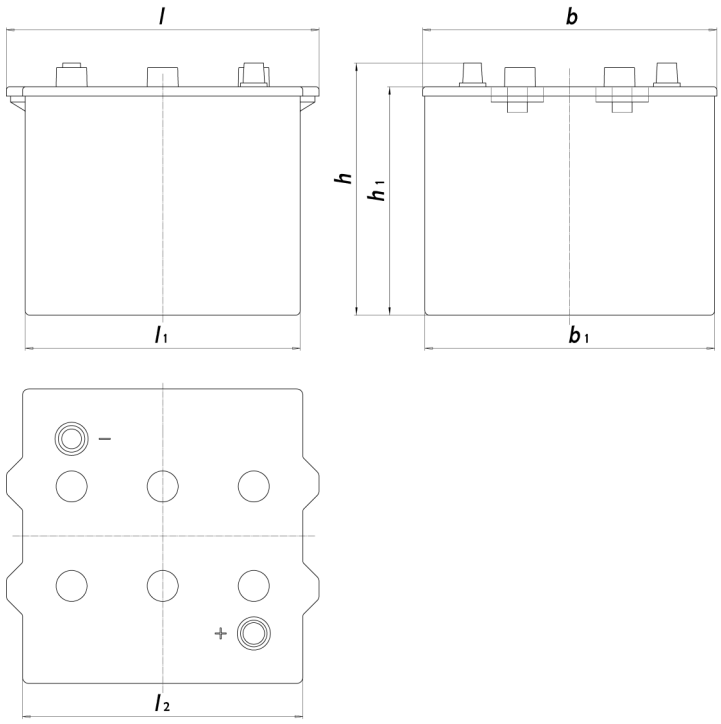

Figure 10 – Type D7

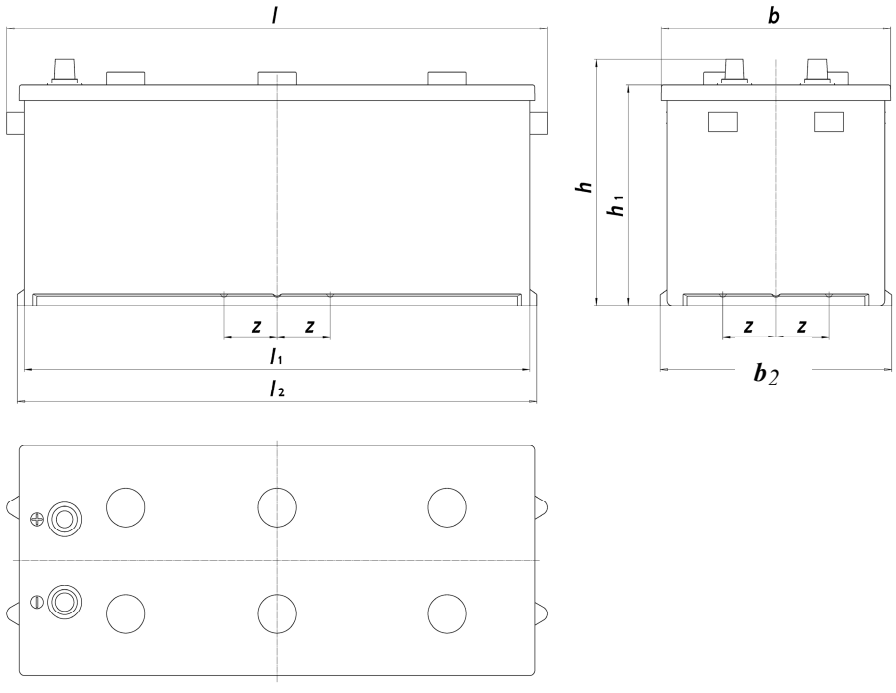

Figure 11 – Types D4a, D5a, D8, D9

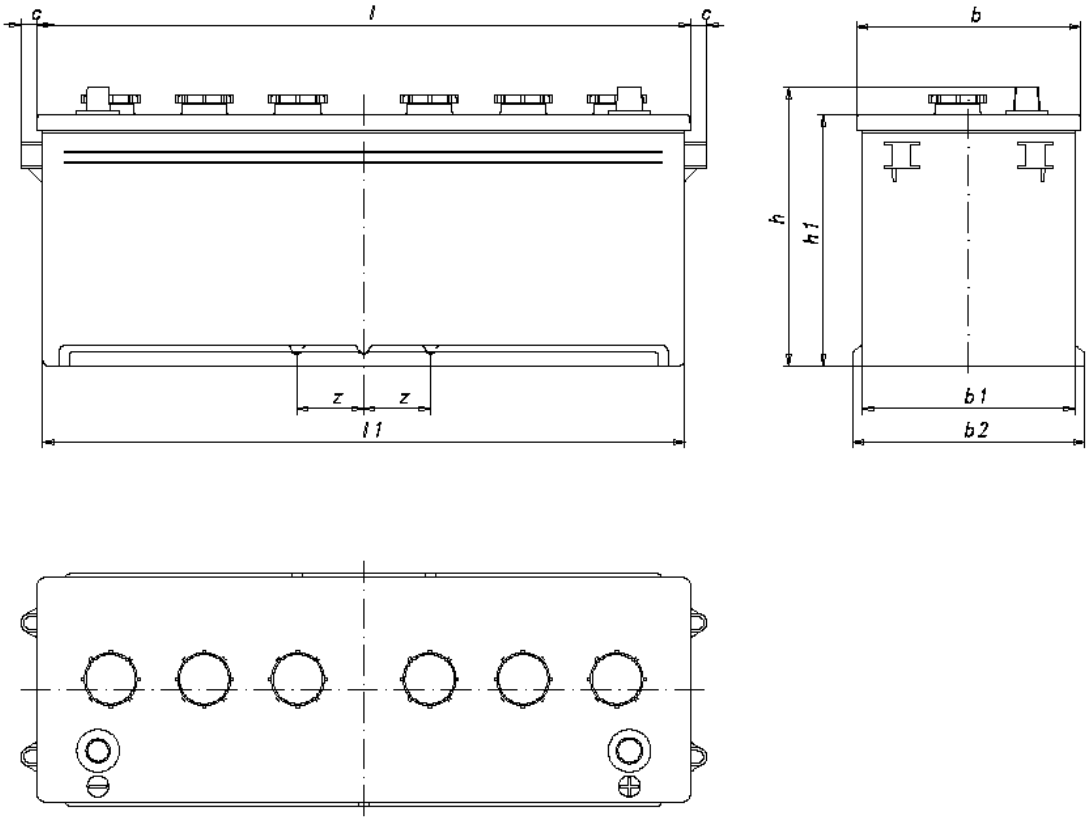

Figure 12 – Type ATM

Bibliography

EN 60095-2:1993, Lead-acid starter batteries – Part 2: Dimensions of batteries and dimensions and marking of terminals (IEC 60095-2:1984, mod.)

ISO 7000, Graphical symbols for use on equipment – Index and synopsis

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