BRITISH STANDARD

BS EN
60254-2:2008

Lead-acid traction batteries —

Part 2: Dimensions of cells and terminals and marking of polarity on cells

ICS 29.220.20

BSI
British Standards

National foreword

This British Standard is the UK implementation of EN 60254-2:2008. It is identical to IEC 60254-2:2008. It supersedes BS EN 60254-2:1997 which is withdrawn.

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.

Compliance with a British Standard cannot confer immunity from legal obligations.

This British Standard was published under the authority of the Standards Policy and Strategy Committee on 30 June 2008

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English version

Lead-acid traction batteries - Part 2: Dimensions of cells and terminals and marking of polarity on cells

(IEC 60254-2:2008)

Batteries d'accumulateurs de traction au plomb - Partie 2: Dimensions des éléments et des bornes et indication de la polarité sur les éléments (CEI 60254-2:2008)

Blei-Antriebsbatterien - Teil 2: Maße von Zellen und Endpolen und Kennzeichnung der Polarität auf Zellen (IEC 60254-2:2008)

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 document 21/668/FDIS, future edition 4 of IEC 60254-2, prepared by IEC TC 21, Secondary cells and batteries, was submitted to the IEC-CENELEC parallel vote and was approved by CENELEC as EN 60254-2 on 2008-03-01.

This European Standard supersedes EN 60254-2:1997 + A1:2000. The main modification concerns the introduction of new dimensions.

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)	2008-12-01
– latest date by which the national standards conflicting with the EN have to be withdrawn	(dow)	2011-03-01

Annex ZA has been added by CENELEC.

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Endorsement notice

The text of the International Standard IEC 60254-2:2008 was approved by CENELEC as a European Standard without any modification.

In the official version, for Bibliography, the following note has to be added for the standard indicated:

IEC 60095-2	NOTE Harmonized as EN 60095-2:1993 (modified).

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CONTENTS

LEAD-ACID TRACTION BATTERIES –

Part 2: Dimensions of cells and terminals and marking of polarity on cells

1 Scope and object

This part of IEC 60254 is applicable to lead-acid traction batteries used as power sources for electric propulsion.

The object of the present standard is to specify:

– the maximum external (overall) dimensions of traction battery cells, that is, the width, the height and the length;

– the form of the marking of traction battery cell polarity and dimensions of corresponding symbols;

– the basic dimensions of some commonly used traction battery terminals designed to connect output cables to the battery;

– the dimensions of cells commonly used in Asia and North America.

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.

IEC 60417, *Graphical symbols for use on equipment*

3 Main dimensions of traction battery cells

3.1 Standard series

Traction battery cells in accordance with this standard shall belong to one of the following two dimensional series determined by the width:

E (narrow) L (wide)

3.2 External dimensions

3.2.1 The external (overall) dimensions of traction battery cells are represented by the following symbols:

b width (dimension parallel to the surface of the plates);

h height (including lid, vent plugs and terminals, but without output cable);

l length (dimension perpendicular to the surface of the plates).

3.2.2 The dimensions of traction battery cells in accordance with this standard shall correspond to those of Table 1.

Table 1 – Main dimensions of traction battery cells

Series	Width *b* max. mm	Type	Height *h* max. mm	Length series *l* max. mm
E	160	A	300	47, 64, 79
		B	370	95, 111
		C	440	127, 145
		D	510	160, 176
		E	555	192, 208
		G	750	
L	198	B	370	47, 65
		C	440	83, 101
		D	510	119, 137
		E	555	155, 174
		F	605	192
		G	750	

3.3 Cell range prevalent in Asia

For information, the dimensions of traction battery cells in this range are given in Table 2.

NOTE For specific applications see the approprioate Japanese standard.

3.4 Cell range prevalent in North America

For information, the dimensions of traction battery cells in this range are given in Table 3. Width and length only are specified.

NOTE For specific applications see the appropriate USA standard.

Table 2 – Main dimensions of traction battery cells prevalent in Asia

Type	Max. external dimensions mm			Standard dimensions mm												
	Total height	Box height	Width	Length												
B	360	323	160			90	94	109	128	144	161			206		
C	390	353	160			90	94	109	128	144	161		190	206		244
D	435	398	160	60		90	94	109	128	144	161	177	190			244
DH	450	413	160							144	161	177		206		
F	530	493	160	60	75	90		109	128	144		177	190		225	
I	560	523	160	60	75	90		109	128	144	161		190	206	225	244
H	740	703	160	60	75	90	94	109	128	144						

Table 3 – Main dimensions of traction battery cells (vented) prevalent in North America

Plates	Cell footprint			
	Narrow		Wide	
	in	mm	in	mm
5	2,00 × 6,19	50,8 × 157,2		
7	2,75 × 6,19	69,9 × 157,2		
9	3,50 × 6,19	88,9 × 157,2	3,50 × 8,63	88,9 × 219,2
11	4,25 × 6,19	108,0 × 157,2	4,25 × 8,63	108,0 × 219,2
13	5,00 × 6,19	127,0 × 157,2	5,00 × 8,63	127,0 × 219,2
15	5,75 × 6,25	146,1 × 158,8	5,75 × 8,63	146,1 × 219,2
17	6,50 × 6,25	165,1 × 158,8	6,50 × 8,63	165,1 × 219,2
19	7,25 × 6,25	184,2 × 158,8	7,25 × 8,63	184,2 × 219,2
21	8,00 × 6,25	203,2 × 158,8	8,00 × 8,63	203,2 × 219,2
23	8,75 × 6,25	222,3 × 158,8		
25	9,50 × 6,25	241,3 × 158,8		
27	10,25 × 6,25	260,4 × 158,8		
29	11,00 × 6,25	279,4 × 158,8		
31	11,75 × 6,25	298,5 × 158,8		
33	12,50 × 6,25	317,5 × 158,8		

4 Marking of polarity on traction battery cells and dimensions of corresponding symbols

4.1 General provisions for marking of cell polarity

To comply with this standard, traction battery cells shall carry the marking of polarity, at least of the positive terminal.

4.2 Form of marking

The marking shall take the form of the symbol +, indented or in relief, on the lid adjacent to the positive terminal.

If the negative terminal is also marked, the marking shall take the form of the symbol –, indented or in relief, on the lid adjacent to the negative terminal.

4.3 Symbols used for marking and their dimensions

Symbols used for the marking of the polarity shall be in accordance with IEC 60417.

The marking of the positive terminal shall be in accordance with the symbol IEC 60417-5005 (2002-10): plus, positive polarity.

The eventual marking of the negative terminal shall be in accordance with the symbol IEC 60417-5006 (2002-10): minus, negative polarity.

The actual value of dimension "*a*" of these symbols shall be equal to or greater than 5 mm.

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

5 Basic dimensions of traction battery terminals

5.1 General provisions for dimensions of battery terminals

This standard gives only basic dimensions of standardized types of battery end terminals necessary to ensure interchangeability. The use of other forms of terminal is not precluded.

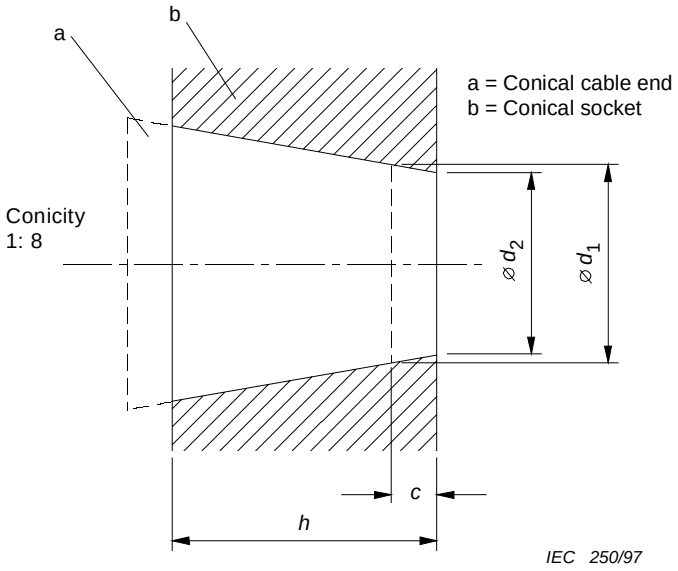
5.2 Conical traction battery terminals

The traction battery terminals shall be chosen from the three types listed in Figure 1, based upon the cross-sectional area of cable used.

5.3 Bolted traction battery terminals

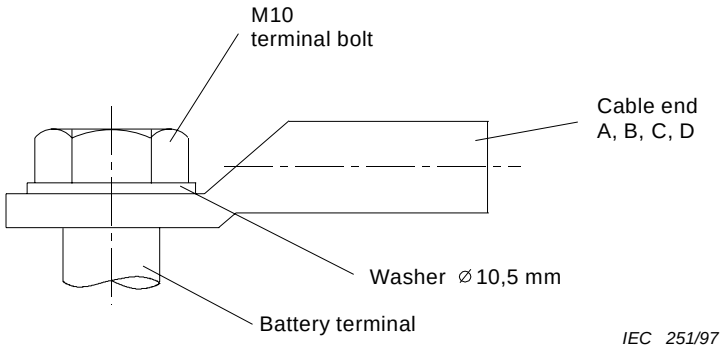
The traction battery cable ends for bolted terminals shall be chosen from the four types listed in Figure 2, based upon the cross-sectional area of cable used.

NOTE For smaller size connections, reference should be made to the dimensions of terminals shown in IEC 60095-2.



Type of terminal	Maximum cable area	Dimensions mm			
	mm²	d_1	h	d_2	c_{max}
A	50	12,5	25,0	13,0	4,0
B	70	14,0	25,0	14,5	4,0
C	95	15,0	36,0	16,0	8,0

Figure 1 – Basic dimensions of conical traction battery terminals



Type of cable end	Terminal bolt size	Bolt hole diameter mm	Maximum cable area mm^2
A	M 10	11	35
B	M 10	11	50
C	M 10	11	70
D	M 10	11	95

NOTE The terminals above cover the majority of Industrial applications. However, as lighter more compact applications develop there is a potential need for smaller terminals and these are not precluded. This situation will be monitored and may lead to future modifications.

Figure 2 – Basic dimensions of traction battery cable ends for bolted terminals

Bibliography

IEC 60095-2:1984, *Lead-acid starter batteries – Part 2: Dimensions of batteries and dimensions and marking of terminals*

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Annex ZA
(normative)

Normative references to international publications with their corresponding European publications

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.

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 60417	Data-base	Graphical symbols for use on equipment	-	-

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