

<b>STN</b>	<b>Bezpečnostné požiadavky na akumulátorové batérie a inštalácie batérií</b> <b>Časť 4: Olovené batérie s ventilovou reguláciou na použitie v prenosných prístrojoch</b>	<b>STN EN IEC 62485-4</b>  36 4380
------------	---	--

Safety requirements for secondary batteries and battery installations - Part 4: Valve-regulated lead-acid batteries for use in portable appliances

Táto norma obsahuje anglickú verziu európskej normy.  
This standard includes the English version of the European Standard.

Táto norma bola oznámená vo Vestníku ÚNMS SR č. 12/18

Obsahuje: EN IEC 62485-4:2018, IEC 62485-4:2015

Oznámením tejto normy sa ruší  
STN EN 50272-4 (36 4380) z októbra 2007

**127526**

EUROPEAN STANDARD

**EN IEC 62485-4**

NORME EUROPÉENNE

EUROPÄISCHE NORM

May 2018

ICS 29.220.20; 29.220.30

Supersedes EN 50272-4:2007

English Version

**Safety requirements for secondary batteries and battery installations - Part 4: Valve-regulated lead-acid batteries for use in portable appliances  
(IEC 62485-4:2015)**

Exigences de sécurité pour les batteries d'accumulateurs et les installations de batteries - Partie 4: Batteries au plomb à soupapes pour appareils portables  
(IEC 62485-4:2015)

Sicherheitsanforderungen an Sekundär-Batterien und Batterieanlagen - Teil 4: Verschlussene Bleibatterien zur Anwendung in tragbaren Geräten  
(IEC 62485-4:2015)

This European Standard was approved by CENELEC on 2018-04-09. 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 CEN-CENELEC Management Centre 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 CEN-CENELEC Management Centre has the same status as the official versions.

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



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

**CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels**

**EN IEC 62485-4:2018 (E)****European foreword**

This document (EN IEC 62485-4:2018) consists of the text of IEC 62485-4:2015 prepared by IEC/TC 21 "Secondary cells and batteries".

The following dates are fixed:

- latest date by which this document has to be implemented (dop) 2019-04-09  
at national level by publication of an identical national standard or by endorsement
- latest date by which the national standards conflicting with this document have to be withdrawn (dow) 2021-04-09

This document supersedes EN 50272-4:2007.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CENELEC shall not be held responsible for identifying any or all such patent rights.

**Endorsement notice**

The text of the International Standard IEC 62485-4:2015 was approved by CENELEC as a European Standard without any modification.

In the official version, for Bibliography, the following notes have to be added for the standards indicated:

IEC 60086-1	NOTE	Harmonized as EN 60086-1.
IEC 60086-2	NOTE	Harmonized as EN 60086-2.
IEC 60086-3	NOTE	Harmonized as EN 60086-3.
IEC 60086-4	NOTE	Harmonized as EN 60086-4.
IEC 60086-5	NOTE	Harmonized as EN 60086-5.
IEC 61056-1	NOTE	Harmonized as EN 61056-1.
IEC 61056-2	NOTE	Harmonized as EN 61056-2.
IEC 62133	NOTE	Harmonized as EN 62133.
IEC 62425-2	NOTE	Harmonized as EN 62425-2.

## Annex ZA (normative)

### Normative references to international publications with their corresponding European publications

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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 1 Where an International Publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

NOTE 2 Up-to-date information on the latest versions of the European Standards listed in this annex is available here: [www.cenelec.eu](http://www.cenelec.eu).

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 60050-482	2004	International Electrotechnical Vocabulary (IEV) -- Part 482: Primary and secondary cells and batteries	-	-
IEC 60417-DB	-	Graphical symbols for use on equipment	-	-
IEC 61429	1995	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	EN 61429	1996
-	-		+ A11	1998
-	-		+ corrigendum Oct.	1998
ISO 7000	-	Graphical symbols for use on equipment - Registered symbols	-	-



IEC 62485-4

Edition 1.0 2015-01

# INTERNATIONAL STANDARD

## NORME INTERNATIONALE

---

**Safety requirements for secondary batteries and battery installations –  
Part 4: Valve-regulated lead-acid batteries for use in portable appliances**

**Exigences de sécurité pour les batteries d'accumulateurs et les installations  
de batteries –  
Partie 4: Batteries au plomb à soupapes pour appareils portables**



**THIS PUBLICATION IS COPYRIGHT PROTECTED****Copyright © 2015 IEC, Geneva, Switzerland**

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from either IEC or IEC's member National Committee in the country of the requester. If you have any questions about IEC copyright or have an enquiry about obtaining additional rights to this publication, please contact the address below or your local IEC member National Committee for further information.

Droits de reproduction réservés. Sauf indication contraire, aucune partie de cette publication ne peut être reproduite ni utilisée sous quelque forme que ce soit et par aucun procédé, électronique ou mécanique, y compris la photocopie et les microfilms, sans l'accord écrit de l'IEC ou du Comité national de l'IEC du pays du demandeur. Si vous avez des questions sur le copyright de l'IEC ou si vous désirez obtenir des droits supplémentaires sur cette publication, utilisez les coordonnées ci-après ou contactez le Comité national de l'IEC de votre pays de résidence.

IEC Central Office  
3, rue de Varembe  
CH-1211 Geneva 20  
Switzerland

Tel.: +41 22 919 02 11  
Fax: +41 22 919 03 00  
[info@iec.ch](mailto:info@iec.ch)  
[www.iec.ch](http://www.iec.ch)

**About the IEC**

The International Electrotechnical Commission (IEC) is the leading global organization that prepares and publishes International Standards for all electrical, electronic and related technologies.

**About IEC publications**

The technical content of IEC publications is kept under constant review by the IEC. Please make sure that you have the latest edition, a corrigenda or an amendment might have been published.

**IEC Catalogue - [webstore.iec.ch/catalogue](http://webstore.iec.ch/catalogue)**

The stand-alone application for consulting the entire bibliographical information on IEC International Standards, Technical Specifications, Technical Reports and other documents. Available for PC, Mac OS, Android Tablets and iPad.

**IEC publications search - [www.iec.ch/searchpub](http://www.iec.ch/searchpub)**

The advanced search enables to find IEC publications by a variety of criteria (reference number, text, technical committee,...). It also gives information on projects, replaced and withdrawn publications.

**IEC Just Published - [webstore.iec.ch/justpublished](http://webstore.iec.ch/justpublished)**

Stay up to date on all new IEC publications. Just Published details all new publications released. Available online and also once a month by email.

**Electropedia - [www.electropedia.org](http://www.electropedia.org)**

The world's leading online dictionary of electronic and electrical terms containing more than 30 000 terms and definitions in English and French, with equivalent terms in 15 additional languages. Also known as the International Electrotechnical Vocabulary (IEV) online.

**IEC Glossary - [std.iec.ch/glossary](http://std.iec.ch/glossary)**

More than 60 000 electrotechnical terminology entries in English and French extracted from the Terms and Definitions clause of IEC publications issued since 2002. Some entries have been collected from earlier publications of IEC TC 37, 77, 86 and CISPR.

**IEC Customer Service Centre - [webstore.iec.ch/csc](http://webstore.iec.ch/csc)**

If you wish to give us your feedback on this publication or need further assistance, please contact the Customer Service Centre: [csc@iec.ch](mailto:csc@iec.ch).

**A propos de l'IEC**

La Commission Electrotechnique Internationale (IEC) est la première organisation mondiale qui élabore et publie des Normes internationales pour tout ce qui a trait à l'électricité, à l'électronique et aux technologies apparentées.

**A propos des publications IEC**

Le contenu technique des publications IEC est constamment revu. Veuillez vous assurer que vous possédez l'édition la plus récente, un corrigendum ou amendement peut avoir été publié.

**Catalogue IEC - [webstore.iec.ch/catalogue](http://webstore.iec.ch/catalogue)**

Application autonome pour consulter tous les renseignements bibliographiques sur les Normes internationales, Spécifications techniques, Rapports techniques et autres documents de l'IEC. Disponible pour PC, Mac OS, tablettes Android et iPad.

**Recherche de publications IEC - [www.iec.ch/searchpub](http://www.iec.ch/searchpub)**

La recherche avancée permet de trouver des publications IEC en utilisant différents critères (numéro de référence, texte, comité d'études,...). Elle donne aussi des informations sur les projets et les publications remplacées ou retirées.

**IEC Just Published - [webstore.iec.ch/justpublished](http://webstore.iec.ch/justpublished)**

Restez informé sur les nouvelles publications IEC. Just Published détaille les nouvelles publications parues. Disponible en ligne et aussi une fois par mois par email.

**Electropedia - [www.electropedia.org](http://www.electropedia.org)**

Le premier dictionnaire en ligne de termes électroniques et électriques. Il contient plus de 30 000 termes et définitions en anglais et en français, ainsi que les termes équivalents dans 15 langues additionnelles. Egalement appelé Vocabulaire Electrotechnique International (IEV) en ligne.

**Glossaire IEC - [std.iec.ch/glossary](http://std.iec.ch/glossary)**

Plus de 60 000 entrées terminologiques électrotechniques, en anglais et en français, extraites des articles Termes et Définitions des publications IEC parues depuis 2002. Plus certaines entrées antérieures extraites des publications des CE 37, 77, 86 et CISPR de l'IEC.

**Service Clients - [webstore.iec.ch/csc](http://webstore.iec.ch/csc)**

Si vous désirez nous donner des commentaires sur cette publication ou si vous avez des questions contactez-nous: [csc@iec.ch](mailto:csc@iec.ch).



IEC 62485-4

Edition 1.0 2015-01

# INTERNATIONAL STANDARD

# NORME INTERNATIONALE

---

**Safety requirements for secondary batteries and battery installations –  
Part 4: Valve-regulated lead-acid batteries for use in portable appliances**

**Exigences de sécurité pour les batteries d'accumulateurs et les installations  
de batteries –  
Partie 4: Batteries au plomb à soupapes pour appareils portables**

INTERNATIONAL  
ELECTROTECHNICAL  
COMMISSION

COMMISSION  
ELECTROTECHNIQUE  
INTERNATIONALE

---

ICS 29.220.20; 29.220.30

ISBN 978-2-8322-2209-6

**Warning! Make sure that you obtained this publication from an authorized distributor.  
Attention! Veuillez vous assurer que vous avez obtenu cette publication via un distributeur agréé.**

## CONTENTS

FOREWORD .....	3
INTRODUCTION .....	5
1 Scope .....	6
2 Normative references .....	6
3 Terms and definitions .....	6
4 Operating instructions .....	7
5 Dimensions and interchangeability of cells and batteries .....	7
6 Electrical safety .....	7
6.1 Protection against incorrect polarity connection .....	7
6.2 Design of battery and battery compartments .....	7
7 Safe handling and protection against misuse .....	8
7.1 Charging .....	8
7.2 Thermal abuse .....	8
7.3 Mechanical impact .....	8
7.4 Protection against pole reversal in the event of deep discharge .....	8
7.5 Protection against electrical overload .....	8
7.6 Safe handling .....	8
8 Battery compartments .....	8
8.1 General .....	8
8.2 Battery accommodation .....	9
8.3 Replacement battery enclosures .....	9
8.4 Battery terminals .....	9
8.5 Protection against hazards caused by released gas .....	9
9 Measures in the event of accidents with batteries by burns or poisoning .....	9
10 Marking and disposal of batteries for use in portable appliances .....	10
Annex A (informative) Instructions for use and recommendations to the end-users .....	11
A.1 Instructions for use .....	11
A.2 Recommendations to the end-users .....	11
Bibliography .....	13



## INTERNATIONAL ELECTROTECHNICAL COMMISSION

**SAFETY REQUIREMENTS FOR SECONDARY BATTERIES  
AND BATTERY INSTALLATIONS –****Part 4: Valve-regulated lead-acid batteries  
for use in portable appliances**

## FOREWORD

- 1) The International Electrotechnical Commission (IEC) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of IEC is to promote international co-operation on all questions concerning standardization in the electrical and electronic fields. To this end and in addition to other activities, IEC publishes International Standards, Technical Specifications, Technical Reports, Publicly Available Specifications (PAS) and Guides (hereafter referred to as "IEC Publication(s)"). Their preparation is entrusted to technical committees; any IEC National Committee interested in the subject dealt with may participate in this preparatory work. International, governmental and non-governmental organizations liaising with the IEC also participate in this preparation. IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.
- 2) The formal decisions or agreements of IEC on technical matters express, as nearly as possible, an international consensus of opinion on the relevant subjects since each technical committee has representation from all interested IEC National Committees.
- 3) IEC Publications have the form of recommendations for international use and are accepted by IEC National Committees in that sense. While all reasonable efforts are made to ensure that the technical content of IEC Publications is accurate, IEC cannot be held responsible for the way in which they are used or for any misinterpretation by any end user.
- 4) In order to promote international uniformity, IEC National Committees undertake to apply IEC Publications transparently to the maximum extent possible in their national and regional publications. Any divergence between any IEC Publication and the corresponding national or regional publication shall be clearly indicated in the latter.
- 5) IEC itself does not provide any attestation of conformity. Independent certification bodies provide conformity assessment services and, in some areas, access to IEC marks of conformity. IEC is not responsible for any services carried out by independent certification bodies.
- 6) All users should ensure that they have the latest edition of this publication.
- 7) No liability shall attach to IEC or its directors, employees, servants or agents including individual experts and members of its technical committees and IEC National Committees for any personal injury, property damage or other damage of any nature whatsoever, whether direct or indirect, or for costs (including legal fees) and expenses arising out of the publication, use of, or reliance upon, this IEC Publication or any other IEC Publications.
- 8) Attention is drawn to the Normative references cited in this publication. Use of the referenced publications is indispensable for the correct application of this publication.
- 9) Attention is drawn to the possibility that some of the elements of this IEC Publication may be the subject of patent rights. IEC shall not be held responsible for identifying any or all such patent rights.

International Standard IEC 62485-4 has been prepared by IEC technical committee 21: Secondary cells and batteries.

This first edition cancels and replaces the first edition of IEC TR 61056-3 published in 1991. It constitutes a technical revision.

This edition includes the following significant technical changes with respect to the IEC TR 61056-3:

- a) updating of the requirements, and harmonisation of the text for consistency with the IEC 62485 series.

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

FDIS	Report on voting
21/848/FDIS	21/850/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.

A list of all parts of the IEC 62485 series can be found, under the general title *Safety requirements for secondary batteries and battery installations*, on the IEC website.

The committee has decided that the contents of this publication will remain unchanged until the stability date indicated on the IEC website under "<http://webstore.iec.ch>" in the data related to the specific publication. At this date, the publication will be

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

## INTRODUCTION

This standard provides information about the safety and health protection of persons when using valve-regulated lead-acid batteries, which are used as a DC power supply systems in portable appliances. Therefore the standard applies to commercially available valve-regulated lead-acid batteries and battery systems.

IEC 62133 has preference for secondary cells and batteries containing alkaline or other non-acid electrolytes.

In some portable appliances or toys the use of both primary and secondary cells or batteries is possible. Where there is interchangeability of these cells or batteries, the standards for primary batteries in the IEC 60086 series, Parts 1 to 5, have preference.

## **SAFETY REQUIREMENTS FOR SECONDARY BATTERIES AND BATTERY INSTALLATIONS –**

### **Part 4: Valve-regulated lead-acid batteries for use in portable appliances**

#### **1 Scope**

This Part of IEC 62485 applies to the safety aspects associated with the accommodation, the arrangements of circuits and the operation of secondary valve-regulated lead-acid cells and batteries in portable appliances. Requirements are specified which oblige the manufacturers of appliances and secondary batteries to prevent the misuse of batteries in the course of operation to provide protective measures avoiding injury to persons in case of battery failure and to provide sufficient information to users.

This standard does not apply to secondary cells and batteries containing alkaline or other non-acid electrolytes.

#### **2 Normative references**

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

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

IEC 60417, *Graphical symbols for use on equipment*

IEC 61429:1995, *Marking of secondary cells and batteries with the international recycling symbol ISO 7000-1135*

ISO 7000, *Graphical symbols for use on equipment – Registered symbols*

**koniec náhľadu – text ďalej pokračuje v platenej verzii STN**