SLOVENSKI STANDARD
SIST EN 60896-21:2004

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SIST EN 60896-2:1997

Stationary lead-acid batteries - Part 21: Valve regulated types - Methods of test

Stationary lead-acid batteries -- Part 21: Valve regulated types - Methods of test

Ortsfeste Blei-Akkumulatoren -- Teil 21: Verschlossene Bauarten - Prüfverfahren

Batteries stationnaires au plomb -- Partie 21: Types étanches à soupapes - Méthodes d'essais

Ta slovenski standard je istoveten z: EN 60896-21:2004

ICS:

29.220.20	Kislinski sekundarni členi in baterije	Acid secondary cells and batteries

SIST EN 60896-21:2004 **en**

EUROPEAN STANDARD **EN 60896-21**

NORME EUROPÉENNE

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ICS 29.220.20 Supersedes EN 60896-2:1996

English version

Stationary lead-acid batteries
Part 21: Valve regulated types – Methods of test
(IEC 60896-21:2004)

Batteries stationnaires au plomb
Partie 21: Types étanches à soupapes - Méthodes d'essais
(CEI 60896-21:2004)

Ortsfeste Blei-Akkumulatoren
Teil 21: Verschlossene Bauarten - Prüfverfahren
(IEC 60896-21:2004)

This European Standard was approved by CENELEC on 2004-03-01. 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 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.

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

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

Ref. No. EN 60896-21:2004 E

Foreword

The text of document 21/594/FDIS, future edition 1 of IEC 60896-21, prepared by IEC TC 21, Secondary cells and batteries, was submitted to the IEC-CENELEC parallel vote and was approved by CENELEC as EN 60896-21 on 2004-03-01.

This European Standard supersedes EN 60896-2:1996.

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) 2004-12-01

– latest date by which the national standards conflicting with the EN have to be withdrawn (dow) 2007-03-01

Annex ZA has been added by CENELEC.

Endorsement notice

The text of the International Standard IEC 60896-21:2004 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 60050-826	NOTE	Harmonized as HD 384.2 S1:1986 (not modified).
IEC 60095	NOTE	Harmonized in EN 60095 series (partly modified).
IEC 61056	NOTE	Harmonized in EN 61056 series (not modified).
IEC 61427	NOTE	Harmonized as EN 61427:2001 (not modified).
ISO 9000	NOTE	Harmonized as EN ISO 9000:2000 (not modified).
ISO 9001	NOTE	Harmonized as EN ISO 9001:1994 (not modified).
ISO 9001	NOTE	Harmonized as EN ISO 9001:2000 (not modified).

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 60068-2-32	1975	Basic environmental testing procedures Part 2: Tests - Test Ed: Free fall (Procedure 1)		
+ A2	1990		HD 323.2.32 S2	1991
IEC 60695-11-10	- [1)]	Fire hazard testing Part 11-10: Test flames - 50 W horizontal and vertical flame test methods	EN 60695-11-10	1999 [2)]
IEC 60707	- [1)]	Flammability of solid non-metallic materials when exposed to flame sources - List of test methods	EN 60707	1999 [2)]
IEC 60896-22	2004	Stationary lead-acid batteries Part 22: Valve regulated types – Requirements	EN 60896-22	
IEC 60950-1 (mod)	2001	Information technology equipment - Safety Part 1: General requirements	EN 60950-1	2001
IEC 61430	1997	Secondary cells and batteries - Test methods for checking the performance of devices designed for reducing explosion hazards - Lead-acid starter batteries	-	-
ISO 1043-1	2001	Plastics - Symbols and abbreviated terms Part 1: Basic polymers and their special characteristics	-	-

1) Undated reference.

2) Valid edition at date of issue.

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Batteries stationnaires au plomb –

Partie 21: Types étanches à soupapes – Méthodes d'essai

Stationary lead-acid batteries –

Part 21: Valve regulated types – Methods of test

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Международная Электротехническая Комиссия

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

STATIONARY LEAD-ACID BATTERIES –

Part 21: Valve regulated types – Methods of test

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.
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International Standard IEC 60896-21 has been prepared by IEC technical committee 21: Secondary cells and batteries.

This standard cancels and replaces IEC 60896-2 published in 1995.

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

FDIS	Report on voting
21/594/FDIS	21/600/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.

This standard constitutes Part 21 of the IEC 60896 series, published under the general title *Stationary lead-acid batteries*. At the time of the publication of this part, the following parts had already been published or were in the process of being published:

Part 11: Vented types – General requirements and methods of tests

Part 21: Valve regulated types – Methods of test [1)]

Part 22: Valve regulated types – Requirements

The committee has decided that the contents of this publication will remain unchanged until 2011. At this date, the publication will be

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

1 This standard replaces IEC 60896-2:1995, *Stationary lead-acid batteries – General requirements and methods of test – Part 2: Valve regulated types*.

STATIONARY LEAD-ACID BATTERIES –

Part 21: Valve regulated types – Methods of test

1 Scope

This part of IEC 60896 applies to all stationary lead-acid cells and monobloc batteries of the valve regulated type for float charge applications, (i.e. permanently connected to a load and to a d.c. power supply), in a static location (i.e. not generally intended to be moved from place to place) and incorporated into stationary equipment or installed in battery rooms for use in telecom, uninterruptible power supply (UPS), utility switching, emergency power or similar applications.

The objective of this part of IEC 60896 is to specify the methods of test for all types and construction of valve regulated stationary lead acid cells and monobloc batteries used in standby power applications.

This part of IEC 60896 does not apply to lead-acid cells and monobloc batteries used for vehicle engine starting applications (IEC 60095 series), solar photovoltaic energy systems (IEC 61427), or general purpose applications (IEC 61056 series).

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 60068-2-32:1975, *Basic environmental testing procedures – Part 2: Test; Test Ed: Free fall*
Amendment 2 (1990)

IEC 60695-11-10, *Fire hazard testing – Part 11-10 Test flames – 50 W horizontal and vertical flame test methods*

IEC 60707, *Flammability of solid non-metallic materials when exposed to flame sources – List of test methods*

IEC 60896-22:2004, *Stationary lead acid batteries – Part 22: Valve regulated types – Requirements*

IEC 60950-1:2001, *Information technology equipment – Safety – Part 1: General requirements*

IEC 61430:1997, *Secondary cells and batteries – Test methods for checking the performance of devices designed for reducing explosion hazards – Lead-acid starter batteries*

ISO 1043-1, *Plastics – Symbols and abbreviated terms – Part 1: Basic polymers and their special characteristics*

3 Definitions

For the purpose of this part of IEC 60896, the following definitions apply:

3.1
accuracy (of a measuring instrument)
quality which characterizes the ability of a measuring instrument to provide an indicated value close to a true value of the measurand

[IEV 311-06-08]

NOTE Accuracy is all the better when the indicated value is closer to the corresponding true value.

3.2
accuracy class
category of measuring instruments, all of which are intended to comply with a set of specifications regarding uncertainty

[IEV 311-06-09]

3.3
ambient temperature
temperature of the medium in the immediate vicinity of a cell or battery

[IEV 486-03-12]

3.4
ampere-hour
quantity of electricity or a capacity of a battery obtained by integrating the discharge current in ampere with respect to time in hours.

NOTE One ampere-hour equals 3 600 coulombs.

3.5
secondary battery
two or more secondary cells connected together and used as a source of electrical energy

[IEV 486-01-03]

3.6
monobloc battery
secondary battery in which the plate packs are fitted in a multi-compartment container

[IEV 486-01-17]

3.7
floating battery
secondary battery whose terminals are permanently connected to a source of constant voltage sufficient to maintain the battery approximately fully charged, intended to supply a circuit, if the normal supply is temporarily interrupted

[IEV 486-04-10]

3.8
battery capacity
quantity of electricity or electrical charge, which a fully charged battery can deliver under specified conditions

[IEV 486-03-01]

NOTE The SI unit for electric charge is the coulomb (1 C = 1 A.s) but in practice, battery capacity is expressed in ampere-hours (Ah).

3.9
charge
operation during which a secondary battery receives from an external circuit electrical energy, which is converted into chemical energy

[IEV 486-01-11]

NOTE A charge is defined by its maximum voltage, current and duration.

3.10
full charge
state where all the available active material of a secondary cell or battery has been reconverted to its fully charged status

[IEV 486-03-37]

3.11
overcharge
continued charging after the full charge of a secondary cell or battery

[IEV 486-03-35]

3.12
cell
assembly of electrodes and electrolyte, which constitutes the basic unit of a secondary battery

[IEV 486-01-02]

3.13
electrochemical cell
electrochemical system capable of storing in chemical form the electric energy received and which can give it back by reconversion, i.e. a secondary cell

[IEV 486-01-01, modified]

3.14
secondary cell
assembly of electrodes and electrolyte which constitutes the basic unit of a secondary battery

[IEV 486-01-02]

3.15
valve regulated cell
secondary cell which is closed under normal conditions but which has an arrangement which allows the escape of gas if the internal pressure exceeds a predetermined value. The cell cannot normally receive the addition of electrolyte

[IEV 486-01-20]