



**SLOVENSKI STANDARD**  
**SIST EN 60896-1:1997/A2:1997**  
**01-februar-1997**

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**Stationary lead-acid batteries - General requirements and methods of test - Part 1:  
Vented types - Amendment A2**

Stationary lead-acid batteries - General requirements and methods of test -- Part 1:  
Vented types

Ortsfeste Blei-Akkumulatoren - Allgemeine Anforderungen und Prüfungen -- Teil 1:  
Geschlossene Batterien

Batteries stationnaires au plomb - Prescriptions générales et méthodes d'essai -- Partie  
1: Batteries au plomb du type ouvert

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**Ta slovenski standard je istoveten z: EN 60896-1:1991/A2:1992**

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**ICS:**

29.220.20      Sä | ä • \ ä ^ \ ~ } å æ } ä | ^ } ä æ      Acid secondary cells and  
à æ ^ | ä      batteries

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EUROPEAN STANDARD

EN 60896-1/A2

NORME EUROPEENNE

EUROPÄISCHE NORM

October 1992

UDC 621.355.2

Descriptors: Lead-acid batteries, specifications, characteristics, tests

## Amendment A2 to the English version of EN 60896-1

Stationary lead-acid batteries - General  
requirements and methods of test  
Part 1: Vented types  
(IEC 896:1987/A2:1990)

Batteries stationnaires au plomb  
Prescriptions générales et  
méthodes d'essai  
Première partie: Batteries au  
plomb du type ouvert  
(CEI 896:1987/A2:1990)

Ortsfeste Blei-Akkumulatoren  
Allgemeine Anforderungen und  
Prüfungen  
Teil 1: Geschlossene Batterien  
(IEC 896:1987/A2:1990)

## iTech STANDARD PREVIEW

This amendment A2 modifies the European Standard EN 60896-1:1991. It was approved by CENELEC on 1992-09-15. CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this amendment 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 amendment 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, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, 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

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Ref. No. EN 60896-1:1991/A2:1992 E

Page 2  
EN 60896-1:1991/A2:1992

### FOREWORD

The CENELEC questionnaire procedure, performed for finding out whether or not the International Standard IEC 896-1:1987/A2:1990 could be accepted without textual changes, has shown that no common modifications were necessary for the acceptance as European Standard.

The reference document was submitted to the CENELEC members for formal vote and was approved by CENELEC as EN 60896-1/A2 on 15 September 1992.

The following dates were fixed:

- latest date of publication of an identical national standard (dop) 1993-03-15
- latest date of withdrawal of conflicting national standards (dow) 1993-03-15

For products which have complied with EN 60896-1:1991 before 1993-03-15, as shown by the manufacturer or by a certification body, this previous standard may continue to apply for production until 1998-03-15.

[SIST EN 60896-1:1997/A2:1997](https://standards.iteh.ai/catalog/standards/sist/548f5a41-13ea-41ee-b2dd-dd78f594919/sist-en-60896-1-1997-a2-1997)

<https://standards.iteh.ai/catalog/standards/sist/548f5a41-13ea-41ee-b2dd-dd78f594919/sist-en-60896-1-1997-a2-1997>

### ENDORSEMENT NOTICE

The text of amendment 2:1990 to the International Standard IEC 896-1:1987 was approved by CENELEC as an amendment to the European Standard without any modification.

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NORME  
INTERNATIONALE  
INTERNATIONAL  
STANDARD

CEI  
IEC  
896-1

1987

AMENDEMENT 2  
AMENDMENT 2

1990-12

Amendement 2 à la Publication 896-1 (1987)

Batteries stationnaires au plomb

Prescriptions générales et méthodes d'essai

Première partie:

Batteries au plomb du type ouvert

SIST EN 60896-1:1997/A2:1997

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Amendment 2 to Publication 896-1 (1987)

Stationary lead-acid batteries

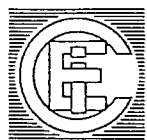
General requirements and methods of test

Part 1:

Vented types

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Commission Electrotechnique Internationale  
International Electrotechnical Commission  
Международная Электротехническая Комиссия

CODE PRIX  
PRICE CODE

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For price, see current catalogue

## PREFACE

This amendment has been prepared by IEC Technical Committee No. 21: Secondary cells and batteries.

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

Six Months' Rule	Report on Voting
21(C0)311	21(C0)317

Full information on the voting for the approval of this amendment can be found in the Voting Report indicated in the above table.

Page 3

CONTENTS

**iTeh STANDARD PREVIEW**

*Add a new Section Six: Marking.* ([standards.iteh.ai](https://standards.iteh.ai))

*Delete Appendix A.*

[SIST EN 60896-1:1997/A2:1997](https://standards.iteh.ai/catalog/standards/sist/548f5a41-13ea-41ee-b2dd-dd7f6f594919/sist-en-60896-1-1997-a2-1997)

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Page 7

SECTION ONE - GENERAL

*Replace Clauses 1 and 2 by the following:*

1. Scope

This standard is applicable to lead-acid cells and batteries which are designed for service in fixed location (i.e. not habitually to be moved from place to place) and which are permanently connected to the load and to the d.c. power supply. Batteries operating in such applications are called "stationary batteries".

Any type or construction of lead-acid battery may be used for stationary battery applications. This Part 1 of the standard is applicable to vented types only. A Part 2 will be prepared for valve-regulated types.

## 2. Object

The object of this standard is to specify general requirements and the main characteristics, together with corresponding test methods associated with all types and construction modes of lead-acid stationary batteries, excluding valve-regulated types. Recommendations on the use of tests for stationary battery application are given in Table I. Recommendations relating the type of cell or monobloc to the use of tests are given in Table II.

Statements and claims of basic performance data by the manufacturer shall correspond to those tests. The tests may also be used for type-qualification.

## SECTION THREE - FUNCTIONAL CHARACTERISTICS AND SPECIFIC REQUIREMENTS

Page 11

*Sub-clause 7.2b), Note:*

*Replace the existing note by the following:*

*Note.-* In some batteries with Monobloc design the voltage of individual cells cannot be measured. In those cases the assessment of uniformity should be made with the voltage of individual Monobloc-units.

Page 19

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https://standards.iteh.ai/catalog/standards/sist/548f5a41-13ea-41ee-b2dd-dd78f594919/sist-en-60896-1-1997-a2-1997](https://standards.iteh.ai/catalog/standards/sist/548f5a41-13ea-41ee-b2dd-dd78f594919/sist-en-60896-1-1997-a2-1997)

*After Clause 18, on page 11 of Amendment No. 1, add a new Section Six:*

## SECTION SIX - MARKING

### 19. Cell and battery description

The following information shall be permanently marked on the cell or monobloc:

- a) voltage,
- b) manufacturer's or supplier's type reference,
- c) capacity, with an indication of the rating expressed as a current or as time of discharge,
- d) manufacturer's or supplier's name,
- e) electrolyte density (fully charged at reference temperature),
- f) date of manufacture (month and year).

### 20. Information to be included on the cell or monobloc package

Safety recommendations as required by local, national or international regulations.

## 21. Recommended information for the battery room

- a) voltage (battery),
- b) manufacturer's or supplier's type reference,
- c) ampere-hour capacity with rate of discharge and end voltage,
- d) installer's name,
- e) commission date,
- f) electrolyte density (fully charged at the reference temperature),
- g) statements on safety recommendations, operation and maintenance.

## 22. Marking of polarity

22.1 *General provision for marking of cell polarity*

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

22.2 *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.

22.3 *Symbols used for marking and their dimensions*

Symbols used for marking of the polarity shall be in accordance with IEC 417: Graphical symbols for use on equipment.

The marking of the positive terminal shall be in accordance with the symbol: 5005-a, Positive polarity.

Where used, the marking of the negative terminal shall be in accordance with the symbol: 5006-a, Negative polarity.

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

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



TABLE I  
Recommended use of tests for stationary battery applications

Test	Specification clause	Application test information					
		Telecommunications	Switch operation	Emergency lighting and alarms	UPS (uninterruptible power supply)	Stationary engine starting	Photovoltaic systems
Capacity test	13	One test between 10 h and 1 h See 6.2	One test between 10 h and 1 h See 6.2  Optional test 10 min to 1 min See 6.6	One test between 20 h and 1 h See 6.2	One test between 10 h and 1 h See 6.2  Optional test 30 min to 3 min See 6.6	One test between 10 h and 1 h See 6.2  Optional test 5 min See 6.6	One test between 20 h and 1 h See 6.2  Optional test > 100 h See 6.6
Test of suitability for floating battery operation	14	Test information applicable	Test information applicable  Check floating recharge requirements	Test information applicable  Check floating recharge requirements	Test information applicable  Check floating recharge requirements	Test information applicable  Check floating recharge requirements	Test information only applicable to floating applications
Endurance test in discharge-charge cycles	15	Test information applicable to applications where public electricity supply is irregular	Test information applicable to applications where public electricity supply is irregular	Test information applicable to applications where public electricity supply is irregular	Test information applicable to applications where public electricity supply is irregular	Test information applicable to applications where public electricity supply is irregular	Many solar power applications are shallow or deep cyclic applications
Charge retention test	16	Test information applicable to storage and transport conditions	Test information applicable to storage and transport conditions	Test information applicable to storage and transport conditions	Test information applicable to storage and transport conditions	Test information applicable to storage and transport conditions	Test information applicable to storage and transport conditions
Short-circuit current and internal resistance test	17	Test information required for mechanical protection of circuits	Test information required for electrical and mechanical protection of circuits	Test information required for electrical and mechanical protection of circuits	Test information required for electrical and mechanical protection of circuits	Test information required for electrical and mechanical protection of circuits	Test information required for electrical and mechanical protection of circuits

STANDARDS