
Letalske baterije – 2. del: Načrtovanje in konstrukcijske zahteve

Aircraft batteries -- Part 2: Design and construction requirements

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EUROPEAN STANDARD

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NORME EUROPÉENNE

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English version

Aircraft batteries
Part 2: Design and construction requirements
(IEC 60952-2:2004)

Batteries d'aéronefs
Partie 2: Exigences de conception
et de construction
(CEI 60952-2:2004)

Flugzeugbatterien
Teil 2: Anforderungen für Planung
und Konstruktion
(IEC 60952-2:2004)

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This European Standard was approved by CENELEC on 2004-11-01. 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

Foreword

The text of document 21/612/FDIS, future edition 2 of IEC 60952-2, prepared by IEC TC 21, Secondary cells and batteries, was submitted to the IEC-CENELEC parallel vote and was approved by CENELEC as EN 60952-2 on 2004-11-01.

This European Standard supersedes EN 60952-2:1993.

The changes made involve the inclusion of those formats that can be standardised along with their connectors and electrical interfaces.

It is recognised that additional data may be required by other organisations (national standards bodies, AECMA, SAE, etc.). The present standard can be used as a framework to devise tests for generation of the required data.

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) 2005-08-01
- latest date by which the national standards conflicting
with the EN have to be withdrawn (dow) 2007-11-01

Annex ZA has been added by CENELEC.

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Endorsement notice

The text of the International Standard IEC 60952-2:2004 was approved by CENELEC as a European Standard without any modification.

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 Where an international publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 60952-1	2004	Aircraft batteries Part 1: General test requirements and performance levels	EN 60952-1	2004

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Batteries d'aéronefs –

**Partie 2:
Exigences de conception
et de construction**

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Aircraft batteries –

Part 2: [SIST EN 60952-2:2005](https://standards.iteh.ai/catalog/standards/sist/378295c-3e8e-4d62-b625-336d1bdadb5/sist-en-60952-2-2005)

**Design and construction
requirements**

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International Electrotechnical Commission
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INTERNATIONAL ELECTROTECHNICAL COMMISSION

AIRCRAFT BATTERIES –

Part 2: Design and construction requirements

FOREWORD

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International Standard IEC 60952-2 has been prepared by IEC technical committee 21 : Secondary cells and batteries.

This second edition cancels and replaces the first edition published in 1991. The changes introduced in this edition involve the inclusion of those formats that can be standardised along with their connectors and electrical interfaces.

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

FDIS	Report on voting
21/612/FDIS	21/616/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.

It is recognised that additional data may be required by other organisations (national standards bodies, AECMA, SAE etc.). The present standard can be used as a framework to devise tests for generation of the required data.

This publication has been drafted in accordance with the ISO/IEC Directives, Part 2.

IEC 60952 consists of the following parts, under the general title *Aircraft batteries*:

Part 1: General test requirements and performance levels

Part 2: Design and construction requirements

Part 3: Product specification and declaration of design and performance (DDP)¹

The committee has decided that the contents of this publication will remain unchanged until the maintenance result date indicated on the IEC web site 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.

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¹⁾ The second edition of IEC 60952-3 (2004) replaces the first edition published in 1993 under the title: *Aircraft batteries – Part 3: External electrical connectors*

AIRCRAFT BATTERIES –

Part 2: Design and construction requirements

1 Scope

This part of IEC 60952 defines the physical design, construction and material requirements for nickel-cadmium and lead-acid aircraft batteries containing vented or valve-regulated cells or monoblocs. The batteries are used for both general purposes and specific aerospace applications.

The specific topics addressed in this part serve to establish acceptable quality standards required to qualify a battery as airworthy and are divided into two classes (class I and II) as defined in Clause 3 of IEC 60952-1.

A preferred range of aircraft batteries is specified in Annex A, but this part of IEC 60952 may be used for other battery sizes, arrangements and ratings. For particular applications, other design requirements may be stipulated. These will be in addition to the requirements of this part and will be covered by specific documents.

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 60952-1, *Aircraft batteries – Part 1: General test requirements and performance levels*

3 Terms and definitions

Clause 3 of IEC 60952-1 is applicable.

4 General construction requirements

Batteries complying with this standard shall be capable of meeting the requirements of IEC 60952-1 upon commissioning in accordance with manufacturer instructions or as specified in the product specification.

4.1 General purpose requirements for class I and II applications

Batteries designed for utilization in the aerospace environment shall be sufficiently robust and shall withstand the rigors of normal application, handling, manoeuvres and the full range of operating conditions permitted for the aircraft concerned.

4.2 General requirements

- a) **WARNING:** Any change from the original battery manufacturer's design and construction requires re-qualification. During maintenance, do not mix cells or components of different construction or manufacture in the same battery as this could result in a safety issue.
- b) The terminal arrangements should be such as to obviate the possibility of incorrect connection. The type of arrangements shall be selected from the examples shown in Annex B.
- c) The containers shall be constructed of impervious material. The battery manufacturer shall declare the flammability characteristics of the outer containers.

4.3 Installation considerations

- a) Location: Batteries and their containers shall be securely fixed in positions such that they are easily accessible for inspection, replacement and necessary tests.
- b) Temperature of electrolyte: The method of installation shall ensure that, under operating conditions, the temperature of the electrolyte is maintained within the limits necessary for satisfactory operation. This shall normally be achieved by suitable location of the batteries within the aircraft.
- c) Ventilation: Ventilation adequate for the prevention of dangerous concentrations of ignitable or toxic gases shall be provided for the battery and compartment in which batteries are installed. These arrangements shall take account of the quantities of gas likely to be released under conditions of thermal instability of the battery.
- d) Corrosion: Batteries should be accompanied on a tray which is resistant to corrosion by the electrolyte. This tray should be so installed that it will not normally be removed with the battery.
- e) Flammability: Battery case material requirements may vary according to the location of the battery within the aircraft. For example, batteries located within an area which may be subject to a fuel fire shall be fire proof, batteries in crew or passenger compartments shall be flame resistant, while batteries installed in flame resistant or fireproof battery boxes may be flammable. Consideration must be given to toxic fumes given off by many "flame retardant" materials when they burn.

4.4 Workmanship

The battery shall be manufactured in such a manner as to be uniform in quality and shall be free from defects that will affect life, functioning, and appearance. Batteries shall not have loose contacts, improper moulding or fabrication, damaged or improperly assembled contacts, peeling, flaking or chipping of plating or finish, mechanical damage due to testing environments, nicks or burrs of metal parts of surfaces, nor improper or incorrect marking. A description of the requirements is shown in Table 1. Upon delivery, prior to testing and following testing the batteries shall be examined for compliance .