

INTERNATIONAL STANDARD

IEC 60086-3

Second edition
2004-12

Primary batteries –

Part 3: Watch batteries

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

PRIMARY BATTERIES –**Part 3: Watch batteries**

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International Standard IEC 60086-3 has been prepared by IEC technical committee 35: Primary cells and batteries, and ISO technical committee 114: Horology.

This second edition cancels and replaces the first edition published in 1995.

This current revision of IEC 60086-3 is the result of a reformatting initiative aimed at making this part more user-friendly, less ambiguous and, from a cross-reference point of view, fully harmonized with other parts of IEC 60086.

This publication is published as a double logo standard.

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

FDIS	Report on voting
35/1212/FDIS	35/1224/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. In ISO, the standard has been approved by 8 P members out of 8 having cast a vote.

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

IEC 60086 consists of the following parts under the general title *Primary batteries*:

Part 1: General

Part 2: Physical and electrical specifications

Part 3: Watch batteries

Part 4: Safety of lithium batteries

Part 5: Safety of batteries with aqueous electrolyte

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- withdrawn;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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INTRODUCTION

The technical content of this part of IEC 60086 provides specific requirements and information for primary watch batteries. This part was prepared through joint work between IEC TC35 and ISO TC114 to benefit primary battery users, watch designers and battery manufacturers by ensuring the best compatibility between batteries and watches.

This part will remain under continual scrutiny to ensure that the publication is kept up to date with the advances in both battery and watch technologies.

NOTE Safety information can be found in IEC 60086-4 and IEC 60086-5.

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PRIMARY BATTERIES –

Part 3: Watch batteries

1 Scope

This part of IEC 60086 specifies dimensions, designation, methods of tests and requirements for primary batteries for watches. In several cases, a list of test methods is given. When presenting battery electrical characteristics and/or performance data, the manufacturer should specify which test method was used.

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 60086-1:2000, *Primary batteries – Part 1: General*

IEC 60086-2:2000, *Primary batteries – Part 2: Physical and electrical specifications*

IEC 60086-5:2000, *Primary batteries – Part 5: Safety of batteries with aqueous electrolyte*¹

IEC 60410:1973, *Sampling plans and procedures for inspection by attributes*

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

ISO 2859 (all parts), *Sampling procedures for inspection by attributes*

ISO 3951:1989, *Sampling procedures and charts for inspection by variables for percent non-conforming*

NOTE Further references are given in the Bibliography.

3 Terms and definitions

For the purposes of this document, the definitions given in IEC 60086-1 and the following definitions apply.

3.1

capacitive reactance

part of the internal resistance that leads to a voltage drop during the first seconds under load

3.2

capacity

electric charge (quantity of electricity) which a cell or battery can deliver under specified discharge conditions

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

¹ A new edition of IEC 60086-5 is due to be published shortly.

3.3**electromotive force (e.m.f.)**

voltage at the terminals of a battery without load (the effects of polarization and internal resistance do not influence this voltage)

3.4**fresh battery**

undischarged battery 60 days maximum after date of manufacture

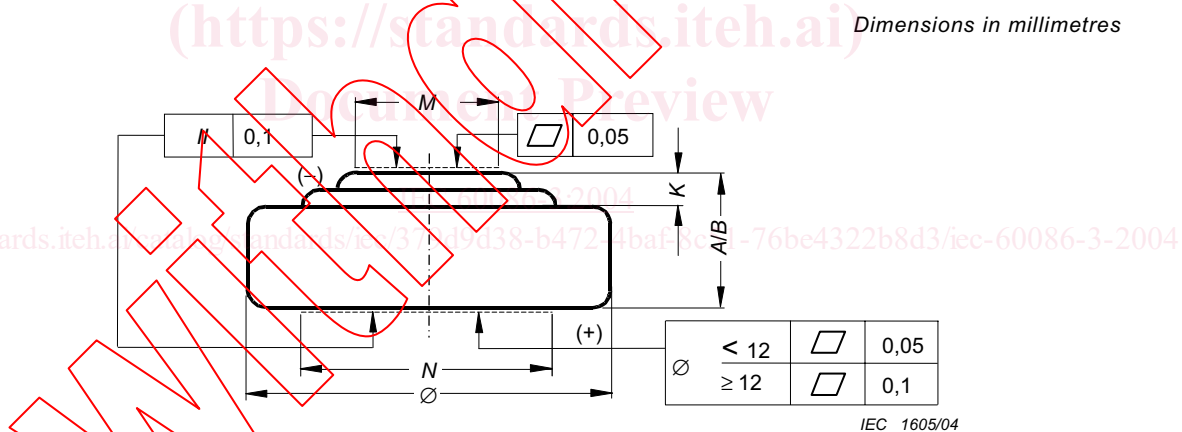
3.5**ohmic drop**

part of the internal resistance that leads to a voltage drop immediately after switching the load on

4 Physical requirements**4.1 Dimensions and size codes**

Dimensions and tolerances of batteries for watches shall be in accordance with Figure 1, Table 1 and Table 2. The dimensions of the batteries shall be tested in accordance with 7.1.

The symbols used to denote the various dimensions in Figure 1 are in accordance with IEC 60086-2, Clause 5.

**Key**

- A* maximum overall height of the battery
B minimum distance between the flats of the positive and negative contacts
K minimum projection of the flat negative contact
M minimum diameter of the flat negative contact
N minimum diameter of the flat positive contact
 \varnothing maximum and minimum diameter of the battery

Figure 1 – Dimensional characteristics