

INTERNATIONAL STANDARD

IEC
60335-2-86

Second edition
2002-03

Household and similar electrical appliances – Safety –

Part 2-86: Particular requirements for electric fishing machines

*Appareils électrodomestiques et analogues –
Sécurité –*

*Partie 2-86:
Règles particulières pour les équipements électriques
de pêche*



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INTERNATIONAL ELECTROTECHNICAL COMMISSION

**HOUSEHOLD AND SIMILAR ELECTRICAL APPLIANCES –
SAFETY –**
Part 2-86: Particular requirements for electric fishing machines

FOREWORD

- 1) The IEC (International Electrotechnical Commission) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of the 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, the IEC publishes International Standards. 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. The 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 the 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 National Committees.
- 3) The documents produced have the form of recommendations for international use and are published in the form of standards, technical specifications, technical reports or guides and they are accepted by the National Committees in that sense.
- 4) In order to promote international unification, IEC National Committees undertake to apply IEC International Standards transparently to the maximum extent possible in their national and regional standards. Any divergence between the IEC Standard and the corresponding national or regional standard shall be clearly indicated in the latter.
- 5) The IEC provides no marking procedure to indicate its approval and cannot be rendered responsible for any equipment declared to be in conformity with one of its standards.
- 6) Attention is drawn to the possibility that some of the elements of this International Standard may be the subject of patent rights. The IEC shall not be held responsible for identifying any or all such patent rights.

This part of International Standard IEC 60335 has been prepared by sub-committee 61H: Safety of electrically-operated farm appliances, of IEC technical committee 61: Safety of household and similar electrical appliances.

This second edition cancels and replaces the first edition published in 1998. It constitutes a technical revision.

The text of this part of IEC 60335 is based on the following documents:

FDIS	Report on voting
61H/165/FDIS	61H/170/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 part 2 is to be used in conjunction with the latest edition of IEC 60335-1 and its amendments. It was established on the basis of the fourth edition (2001) of that standard.

Note 1 When "Part 1" is mentioned in this standard, it refers to IEC 60335-1.

This part 2 supplements or modifies the corresponding clauses in IEC 60335-1, so as to convert that publication into the IEC standard: Safety requirements for electric fishing machines.

When a particular subclause of Part 1 is not mentioned in this part 2, that subclause applies as far as is reasonable. When this standard states "addition", "modification" or "replacement", the relevant text in Part 1 is to be adapted accordingly.

NOTE 2 The following numbering system is used:

- subclauses, tables and figures that are numbered starting from 101 are additional to those in Part 1;
- unless notes are in a new subclause or involve notes in Part 1, they are numbered starting from 101, including those in a replaced clause or subclause;
- additional annexes are lettered AA, BB, etc.

NOTE 3 The following print types are used:

- requirements: in roman type
- *test specifications: in italic type*
- notes: in small roman type.

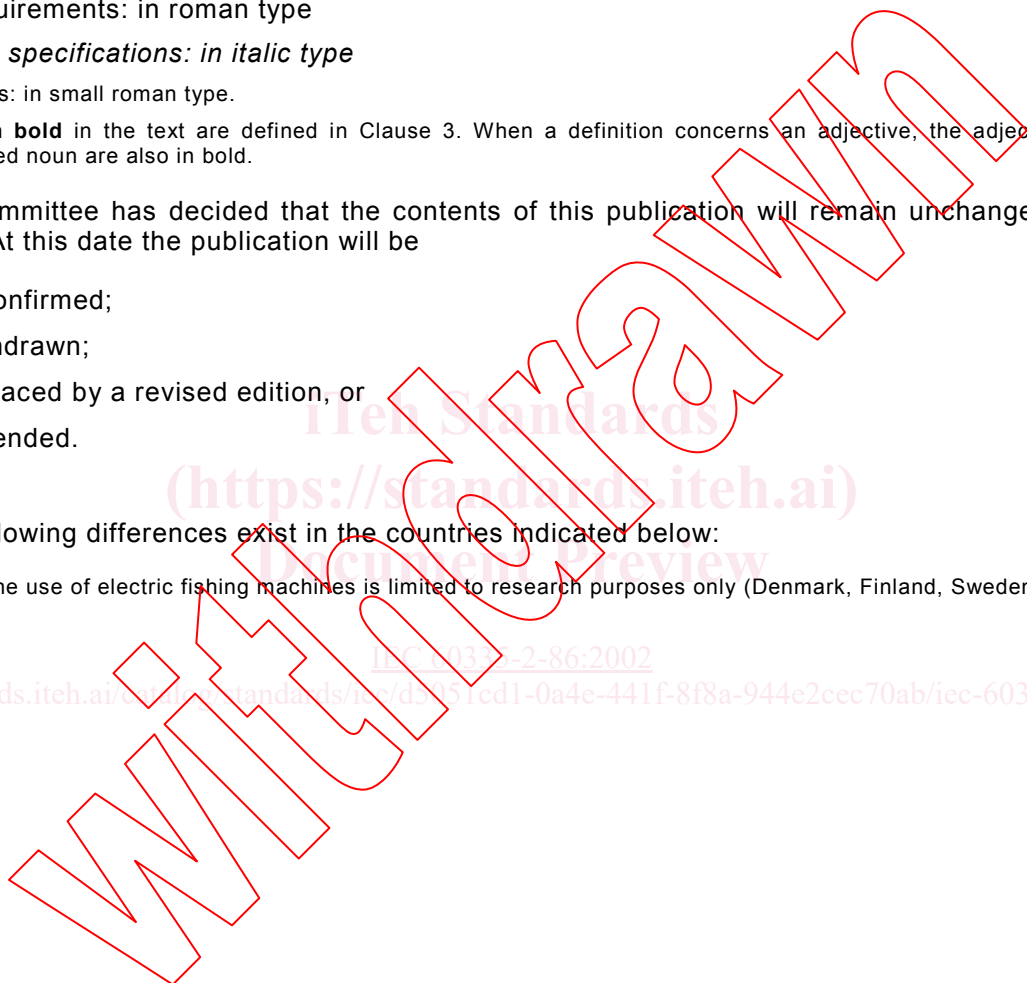
Words in **bold** in the text are defined in Clause 3. When a definition concerns an adjective, the adjective and associated noun are also in bold.

The committee has decided that the contents of this publication will remain unchanged until 2004. At this date the publication will be

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

The following differences exist in the countries indicated below:

- 1: The use of electric fishing machines is limited to research purposes only (Denmark, Finland, Sweden).



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INTRODUCTION

It has been assumed in the drafting of this International Standard that the execution of its provisions is entrusted to appropriately qualified and experienced persons.

This standard recognizes the internationally accepted level of protection against hazards such as electrical, mechanical, thermal, fire and radiation of appliances when operated as in normal use taking into account the manufacturer's instructions. It also covers abnormal situations that can be expected in practice.

This standard takes into account the requirements of IEC 60364 as far as possible so that there is compatibility with the wiring rules when the appliance is connected to the supply mains. However, national wiring rules may differ.

If an appliance within the scope of this standard also incorporates functions that are covered by another part 2 of IEC 60335, the relevant part 2 is applied to each function separately, as far as is reasonable. If applicable, the influence of one function on the other is taken into account.

This standard is a product family standard dealing with the safety of appliances and takes precedence over horizontal and generic standards covering the same subject.

An appliance that complies with the text of this standard will not necessarily be considered to comply with the safety principles of the standard if, when examined and tested, it is found to have other features which impair the level of safety covered by these requirements.

An appliance employing materials or having forms of construction differing from those detailed in the requirements of this standard may be examined and tested according to the intent of the requirements and, if found to be substantially equivalent, may be considered to comply with the standard.

<https://standards.iteh.ai/standards/iec/d5951cd1-0a4e-441f-8f8a-944e2cec70ab/iec-60335-2-86-2002>

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HOUSEHOLD AND SIMILAR ELECTRICAL APPLIANCES – SAFETY –

Part 2-86: Particular requirements for electric fishing machines

1 Scope

This clause of Part 1 is replaced by the following.

This standard deals with the safety of **electric fishing machines** by means of which water may be electrified for the purpose of catching fish or for providing barriers to all animals living in water.

The **rated voltage** of **portable electric fishing machines** is not more than 250 V and the **rated voltage** of **fixed electric fishing machines** for permanent connection to fixed wiring is not more than 1 000 V.

NOTE 101 Examples of **electric fishing machines** coming within the scope of this standard are:

- **mains-operated electric fishing machines** which include those supplied from portable or stationary generator sets;
- **battery-operated electric fishing machines.**

NOTE 102 Attention is drawn to the fact that

- for appliances intended to be used on board ships or boats, additional requirements may be necessary;
- in many countries, additional requirements are specified by the national health authorities, the national authorities responsible for the protection of labour, the national water supply authorities and similar authorities.

NOTE 103 This standard does not apply to

- electric fence energizers (IEC 60335-2-76);
- electric animal stunning equipment (IEC 60335-2-87).

2 Normative references

This clause of Part 1 is applicable except as follows.

Addition:

IEC 60068-2-52:1996, *Environmental testing – Part 2: Tests – Test Kb: Salt mist, cyclic (sodium chloride solution)*

IEC 61558-2-4:1997, *Safety of power transformers, power supply units and similar – Part 2: Particular requirements for isolating transformers for general use*

3 Definitions

This clause of Part 1 is applicable except as follows.

3.1.9 Replacement:

normal operation

operation of the appliance under the following conditions.

The **electric fishing machine** is operated as in normal use when connected to the supply with an adjustable non-inductive resistor connected between its output terminals. The resistor is adjusted so as to give an **output current** just sufficient not to cause any **protective device** to operate

3.6.3 Addition:

NOTE 101 It also includes terminals for the connection of the battery and other metal parts in a battery compartment that become accessible when batteries are replaced, even with the aid of a **tool**.

3.6.4 Replacement:

live part

conductive part that may cause an electric shock

3.101

electric fishing machine

appliance, comprising **electrodes** and an energizer, that is designed or used for the control, taking, killing of any species of fish or invertebrate living in water or for the production of electronarcosis, by means of electric current

NOTE 1 An **electric fishing machine** may be used to provide a barrier effective for all animals living in water.

NOTE 2 A given **electric fishing machine** may only perform some of the functions specified.

3.102

mains-operated electric fishing machine

electric fishing machine designed for direct connection to a supply other than a battery supply at a voltage greater than **safety extra-low voltage**. It may also be supplied from a generator set

3.103

electrode

that part of an **electric fishing machine** that transfers the electric power into the water. The catching **electrode** is the **electrode** used by the fisherman, the return **electrode** is the **electrode** trailed in the water

NOTE The catching **electrode** is usually the anode and the return **electrode** is usually the cathode.

3.104

output circuit

all conductive parts or components within an **electric fishing machine** that are connected or intended to be connected galvanically to the **electrode** terminals

3.105

output voltage

voltage between the **electrodes**

3.106

output current

current in the **output circuit** that the **electric fishing machine** is designed to supply

3.107

impulse

that part of the **pulsed voltage** output that exceeds 12 V

3.108

pulsed voltage

voltage **impulse** of any form and any duration

3.109

battery-operated electric fishing machine

electric fishing machine deriving its energy solely from non-rechargeable batteries, rechargeable batteries or other sources of energy, with a voltage meeting the requirements for **safety extra-low voltage**

4 General requirement

This clause of Part 1 is applicable.

5 General conditions for the tests

This clause of Part 1 is applicable except as follows.

5.8.1 Addition:

*For **battery-operated electric fishing machines** where the supply terminals for the connection of the battery have no indication for polarity, the more unfavourable polarity is applied.*

5.101 *If there is no indication as to which of the output terminals is to be connected to the catching **electrode**, the terminal that gives the most unfavourable result is connected to the return **electrode**.*

5.102 ***Electric fishing machines** are tested as **motor-operated appliances**.*

6 Classification

This clause of Part 1 is applicable except as follows.

6.1 Replacement:

Electric fishing machines that are intended to be permanently connected to fixed wiring shall be **class I** or **class II** with respect to protection against electric shock. Other **electric fishing machines** shall be **class II** or **class III**.

Accessories intended to be supplied with **portable electric fishing machines** shall be **class III**.

Compliance is checked by inspection and by the relevant tests.

6.2 Addition:

Electric fishing machines intended for permanent connection to fixed wiring shall be at least IPX4. Other **electric fishing machines** shall be at least IPX5.

7 Marking and instructions

This clause of Part 1 is applicable except as follows.