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SIST EN 60335-2-76:2005/A11:2008
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SIST EN 60335-2-76:2005/A2:2015

Gospodinjski in podobni električni aparati - Varnost - 2-76. del: Posebne zahteve za generatorje impulzov za električne ograje

Household and similar electrical appliances - Safety - Part 2-76: Particular requirements for electric fence energizers

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ICS:

65.040.10	Poslopja, naprave in oprema za živino	Livestock buildings, installations and equipment
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61H/346/CDV

COMMITTEE DRAFT FOR VOTE (CDV)

PROJECT NUMBER:

IEC 60335-2-76/FRAG1 ED3

DATE OF CIRCULATION:

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CLOSING DATE FOR VOTING:

2017-08-18

SUPERSEDES DOCUMENTS:

61H/342/RR

IEC SC 61H : SAFETY OF ELECTRICALLY-OPERATED FARM APPLIANCES

SECRETARIAT:

New Zealand

SECRETARY:

Mr Derek R. Johns

OF INTEREST TO THE FOLLOWING COMMITTEES:

PROPOSED HORIZONTAL STANDARD:



Other TC/SCs are requested to indicate their interest, if any, in this CDV to the secretary.

FUNCTIONS CONCERNED:

☐ EMC☐ ENVIRONMENT☐ QUALITY ASSURANCE☒ SAFETY☒ SUBMITTED FOR CENELEC PARALLEL VOTING☐ NOT SUBMITTED FOR CENELEC PARALLEL VOTING**Attention IEC-CENELEC parallel voting**

The attention of IEC National Committees, members of CENELEC, is drawn to the fact that this Committee Draft for Vote (CDV) is submitted for parallel voting.

The CENELEC members are invited to vote through the CENELEC online voting system.

This document is still under study and subject to change. It should not be used for reference purposes.

Recipients of this document are invited to submit, with their comments, notification of any relevant patent rights of which they are aware and to provide supporting documentation.

TITLE:

Household and similar electrical appliances - Safety - Part 2-76: Particular requirements for electric fence energizers

NOTE FROM TC/SC OFFICERS:

This CDV is fragment 1 of two fragments. It updates the standard to align with Edition 5.2 of Part 1 and is based on the following documents:

61H/311/DC and 61H/314A/INF – see 61H/319/RM

61H/325/DC and 61H/332A/INF – see 61H/337/RM

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

**HOUSEHOLD AND SIMILAR ELECTRICAL APPLIANCES –
SAFETY –****Part 2-76: Particular requirements for electric fence energizers**

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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- 9) Attention is drawn to the possibility that some of the elements of this IEC Publication may be the subject of patent rights. IEC shall not be held responsible for identifying any or all such patent rights.

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

4 This third edition cancels and replaces the second edition published in 2002, its Amendment 1
5 (2006) and its Amendment 2 (2013). This edition constitutes a technical revision.

6 The principal changes in this edition as compared with the second edition of IEC 60335-2-76
7 are as follows (minor changes are not listed):

8 TO BE INSERTED AT FDIS STAGE

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

FDIS	Report on voting
61H/xxx/FDIS	61H/xxx/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 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 fifth edition (2010) 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 fence energizers.

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 the base publication and its amendments 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.

National committees are requested to note that for this publication the new stability date will be 2021

THIS TEXT IS INCLUDED FOR THE INFORMATION OF NATIONAL COMMITTEES AND WILL BE DELETED AT THE PUBLICATION STAGE

NOTE 3 The attention of National Committees is drawn to the fact that equipment manufacturers and testing organizations may need a transitional period following publication of a new, amended or revised IEC publication in which to make products in accordance with the new requirements and to equip themselves for conducting new or revised tests.

It is the recommendation of the committee that the content of this publication be adopted for implementation nationally not earlier than 12 months or later than 36 months from the date of publication.

The following differences exist in the countries indicated below:

- 6.101: Only energy limited energizers are allowed (Austria, Denmark, France, Germany, Netherlands, Norway, Switzerland and United Kingdom).

56 **Note of the Secretary:** National Committees are asked to reconfirm their in some countries
57 notes. They will be deleted unless reconfirmed.

58

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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 and takes into account the way in which electromagnetic phenomena can affect the safe operation of appliances.

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.

NOTE 1 Throughout this publication, when "Part 1" is mentioned, it refers to IEC 60335-1.

When a part 2 standard does not include additional requirements to cover hazards dealt with in Part 1, Part 1 applies.

NOTE 2 This means that the technical committees responsible for the part 2 standards have determined that it is not necessary to specify particular requirements for the appliance in question over and above the general requirements.

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.

NOTE 3 Horizontal and generic standards covering a hazard are not applicable since they have been taken into consideration when developing the general and particular requirements for the IEC 60335 series of standards. For example, in the case of temperature requirements for surfaces on many appliances, generic standards, such as ISO 13732-1 for hot surfaces, are not applicable in addition to Part 1 or part 2 standards.

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HOUSEHOLD AND SIMILAR ELECTRICAL APPLIANCES – SAFETY –

Part 2-76: Particular requirements for electric fence energizers

1 Scope

This clause of Part 1 is replaced by the following.

This International Standard deals with the safety of **electric fence energizers**, the **rated voltage** of which is not more than 250 V and by means of which **fence** wires in agricultural, domestic or feral animal control **fences** and **security fences** may be electrified or monitored.

NOTE 101 Examples of **electric fence energizers** coming within the scope of this standard are:

- **mains-operated energizers**;
- **battery-operated electric fence energizers suitable for connection to the mains**, as shown in Figure 101;
- **electric fence energizers** operated by non-rechargeable batteries either incorporated or separate.

This standard does not in general take into account

- the use of appliances by young children or infirm persons without supervision;
- the playing with appliances by young children.

NOTE 102 Attention is drawn to the fact that

- for appliances intended to be used on board ships or aircraft, 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

- electromagnetically coupled animal trainer collars;
- appliances intended to be used in locations where special conditions prevail, such as the presence of a corrosive or explosive atmosphere (dust, vapour or gas);
- separate battery chargers (IEC 60335-2-29);
- electric fishing machines (IEC 60335-2-86);
- electric animal-stunning equipment (IEC 60335-2-87);
- appliances for medical purposes (IEC 60601).

2 Normative references

This clause of Part 1 is applicable except as follows.

Addition:

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

ISO 3864-1, *Graphical symbols -- Safety colours and safety signs -- Part 1: Design principles for safety signs and safety markings*

3 Terms and definitions

This clause of Part 1 is applicable except as follows.

3.1.1 *Addition:*

For **type D energizers**, the **rated voltage** of the **energizer** is the **rated voltage** for battery supply.

130 3.1.6 Addition:

131 For **battery-operated electric fence energizers** not for connection to the mains, it is the
132 average input current assigned to the **energizer** by the manufacturer.

133 3.1.9 Replacement:

134 normal operation

135 operation of the appliance under the following conditions: the **electric fence energizer** is
136 operated as in normal use when connected to the supply, with no load connected to the
137 output terminals

138 3.6.3 Addition:

139 Note 101 to entry: It also includes terminals for the connection of the battery and other metal parts in a battery
140 compartment that become accessible when replacing batteries even with the aid of a **tool**.

141 3.6.4 Replacement:

142 live part

143 conductive part that may cause an electric shock

144 3.101

145 electric fence energizer

146 appliance that is intended to deliver periodically voltage impulses to a **fence** connected to it

147 Note 1 to entry: **Electric fence energizers** are hereinafter also referred to as **energizers**.

148 3.102

149 mains-operated energizer

150 **energizer** designed for direct connection to the mains

151 3.103

152 battery-operated energizer suitable for connection to the mains 153 energizer

154 – operated by batteries and having, or being designed for connection to, facilities for
155 charging these batteries from the mains, or

156 – designed for operation from the mains and from batteries

157 3.104

158 type A energizer

159 **battery-operated energizer suitable for connection to the mains** consisting of an impulse
160 generating circuit, a battery charging circuit and a battery, the impulse generating circuit
161 being connected to the mains or the battery when the energizer is in operation

162 Note 1 to entry: **Type A energizers** are shown schematically in Figure 101.

163 3.105

164 type B energizer

165 **battery-operated energizer suitable for connection to the mains** consisting of an impulse
166 generating circuit, a battery charging circuit and a battery, the impulse generating circuit
167 being connected to the battery and disconnected from the battery charging circuit and the
168 mains when the **energizer** is in operation. For recharging the battery the impulse generating
169 circuit is disconnected and rendered inoperable

170 Note 1 to entry: **Type B energizers** are shown schematically in Figure 101.

171 3.106

172 type C energizer

173 **battery-operated energizer suitable for connection to the mains** consisting of an impulse
174 generating circuit and a battery, the impulse generating circuit being connected to the mains
175 or the battery when the energizer is in operation, and where it is necessary to remove the
176 battery to recharge it using a separate battery charger or, in the case of a non-rechargeable
177 battery, to replace it with a new battery

Note 1 to entry: **Type C energizers** are shown schematically in Figure 101.

3.107

type D energizer

battery-operated energizer suitable for connection to the mains consisting of an impulse generating circuit intended to be powered by a battery, the impulse generating circuit being connected to the battery when the **energizer** is in operation and the **energizer** or the battery being connected to a separate battery charger for recharging the battery

Note 1 to entry: Examples of **Type D energizers** are shown schematically in Figure 101.

Note 2 to entry: Examples of separate supply units are power supply units and uninterruptible power supplies

3.108

battery-operated energizer

energizer deriving its energy solely from batteries or other sources of energy and not designed for connection to the mains

3.109

fence circuit

all conductive parts or components within an **energizer**, that are connected or intended to be connected galvanically to the output terminals

3.110

earth electrode

metal structure that is driven into the ground near an **energizer** and connected electrically to the output earth terminal of the **energizer**, and that is independent of other earthing arrangements

3.111

prospective peak voltage

peak output voltage of the impulse generator specified in Clause 14 that would be obtained with the **energizer** not connected to the test circuit

3.112

rated voltage for battery supply

voltage for battery supply, for **type A energizers**, **type B energizers** and **type D energizers** assigned to the **energizer** by the manufacturer

3.113

rated voltage range for battery supply

voltage range for battery supply, for **type A energizers**, **type B energizers** and **type D energizers** assigned to the **energizer** by the manufacturer, expressed by its lower and upper limits

3.114

impulse duration

duration of that part of the impulse that contains 95 % of the overall energy and is the shortest interval of integration of $i(t)$ that gives 95 % of the integration of $i(t)$ over the total impulse

Note 1 to entry: $i(t)$ is the impulse current as a function of time.

3.115

output current

r.m.s. value of the **output current** per impulse calculated over the impulse duration

3.116

standard load

load consisting of a non-inductive resistor of $500 \Omega \pm 2,5 \Omega$ and a variable resistor that is adjusted so as to maximize the energy per impulse or **output current** in the 500Ω resistor, as applicable. The variable resistor is connected in series or parallel with the 500Ω resistor, whichever gives the more unfavourable result