

Svenska Elektriska Kommissionen, SEK

| Fastställt | Utgåva | Sida | Ingår i |
|------------|--------|----------|---------------|
| 2005-04-25 | 2 | 1 (1+51) | SEK Område 61 |

© Copyright SEK. Reproduction in any form without permission is prohibited.

Elektriska hushållsapparater och liknande bruksföremål – Säkerhet – Del 2-76: Särskilda fordringar på elstängselapparater

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

Som svensk standard gäller europastandarden EN 60335-2-76:2005. Den svenska standarden innehåller den officiella engelska språkversionen av EN 60335-2-76:2005.

Nationellt förord

Europastandarden EN 60335-2-76:2005

består av:

- **europastandardens ikraftsättningsdokument**, utarbetat inom CENELEC
- **IEC 60335-2-76, Second edition, 2002 - Household and similar electrical appliances - Safety -Part 2-76: Particular requirements for electric fence energizers**

utarbetad inom International Electrotechnical Commission, IEC.

I en nationell bilaga NA, sist i standarden, återges i svensk översättning bilaga BB och bilaga CC, som innehåller anvisningar för installation.

Standarden skall användas tillsammans med SS-EN 60335-1, utgåva 4, 2002.

Tidigare fastställd svensk standard SS-EN 60335-2-76, utgåva 1, 1999 och SS-EN 60335-2-76/A1, utgåva 1, 2001, gäller ej fr o m 2007-11-01.

ICS 65.040.99

Denna standard är fastställd av Svenska Elektriska Kommissionen, SEK, som också kan lämna upplysningar om **sakinnehållet** i standarden.
Postadress: SEK, Box 1284, 164 29 KISTA
Telefon: 08 - 444 14 00. Telefax: 08 - 444 14 30
E-post: sek@sekom.se. Internet: www.sekom.se

Standarder underlättar utvecklingen och höjer elsäkerheten

Det finns många fördelar med att ha gemensamma tekniska regler för bl a säkerhet, prestanda, dokumentation, utförande och skötsel av elprodukter, elanläggningar och metoder. Genom att utforma sådana standarder blir säkerhetskraven tydliga och utvecklingskostnaderna rimliga samtidigt som marknadens acceptans för produkten eller tjänsten ökar.

Många standarder inom elområdet beskriver tekniska lösningar och metoder som åstadkommer den elsäkerhet som föreskrivs av svenska myndigheter och av EU.

SEK är Sveriges röst i standardiseringsarbetet inom elområdet

Svenska Elektriska Kommissionen, SEK, svarar för standardiseringen inom elområdet i Sverige och samordnar svensk medverkan i internationell och europeisk standardisering. SEK är en ideell organisation med frivilligt deltagande från svenska myndigheter, företag och organisationer som vill medverka till och påverka utformningen av tekniska regler inom elektrotekniken.

SEK samordnar svenska intressenters medverkan i SEKs tekniska kommittéer och stödjer svenska experters medverkan i internationella och europeiska projekt.

Stora delar av arbetet sker internationellt

Utformningen av standarder sker i allt väsentligt i internationellt och europeiskt samarbete. SEK är svensk nationalkommitté av International Electrotechnical Commission (IEC) och Comité Européen de Normalisation Electrotechnique (CENELEC).

Standardiseringsarbetet inom SEK är organiserat i referensgrupper bestående av ett antal tekniska kommittéer som speglar hur arbetet inom IEC och CENELEC är organiserat.

Arbetet i de tekniska kommittéerna är öppet för alla svenska organisationer, företag, institutioner, myndigheter och statliga verk. Den årliga avgiften för deltagandet och intäkter från försäljning finansierar SEKs standardiseringsverksamhet och medlemsavgift till IEC och CENELEC.

Var med och påverka!

Den som deltar i SEKs tekniska kommittéarbete har möjlighet att påverka framtida standarder och får tidig tillgång till information och dokumentation om utvecklingen inom sitt teknikområde. Arbetet och kontakterna med kollegor, kunder och konkurrenter kan gynnsamt påverka enskilda företags affärsutveckling och bidrar till deltagarnas egen kompetensutveckling.

Du som vill dra nytta av dessa möjligheter är välkommen att kontakta SEKs kansli för mer information.

SEK

Box 1284
164 29 Kista
Tel 08-444 14 00
www.sekom.se

EUROPEAN STANDARD

EN 60335-2-76

NORME EUROPÉENNE

EUROPÄISCHE NORM

February 2005

ICS 65.040.99

Supersedes EN 60335-2-76:1999 + A1:2001

English version

**Household and similar electrical appliances –
Safety**
Part 2-76: Particular requirements for electric fence energizers
(IEC 60335-2-76:2002, modified)

Appareils électrodomestiques
et analogues –
Sécurité
Partie 2-76: Règles particulières
pour les électrificateurs de clôtures
(CEI 60335-2-76:2002, modifiée)

Sicherheit elektrischer Geräte für den
Hausgebrauch und ähnliche Zwecke
Teil 2-76: Besondere Anforderungen
für Elektrozaungeräte
(IEC 60335-2-76:2002, modifiziert)

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 61H/173/FDIS, future second edition of IEC 60335-2-76, prepared by SC 61H of the IEC Technical Committee 61, was submitted to the IEC-CENELEC parallel vote.

As a result of the Kista meeting of CENELEC TC 61 in May 2002, a draft amendment prAA containing the relevant existing common modifications was submitted to the formal vote.

The texts of the FDIS and the prAA were approved by CENELEC as a new edition of EN 60335-2-76 on 2004-11-01.

This European Standard replaces EN 60335-2-76:1999 + A1:2001.

The following dates are applicable:

- latest date by which the EN has to be implemented
at national level by publication of an identical
national standard or by endorsement (dop) 2005-11-01
- date on which national standards
conflicting with the EN have to be withdrawn (dow) 2007-11-01

This part 2 has to be used in conjunction with EN 60335-1, Household and similar electrical appliances – Safety – Part 1: General requirements. It was established on the basis of the 2002 edition of that standard. Amendments and revisions of Part 1 have also to be taken into account and the dates when such changes become applicable will be stated in the relevant amendment or revision of Part 1.

This part 2 supplements or modifies the corresponding clauses of EN 60335-1, so as to convert it into the European 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 of Part 1 is to be adapted accordingly.

NOTE 1 The following numbering system is used:

NOTE 1 – subclauses, tables and figures that are numbered starting from 101 are additional to those in Part 1;

NOTE 2 – 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;

NOTE 3 – additional annexes are lettered AA, BB, etc.;

– subclauses, notes and annexes that are additional to those in the IEC standard are prefixed with the letter Z.

NOTE 2 The following print types are used:

NOTE 4 – requirements: in roman type;

NOTE 5 – *test specifications: in italic type;*

NOTE 6 – notes: in small roman type.

NOTE 7 Words in **bold** in the text are defined in Clause 3. When a definition concerns an adjective, the adjective and the associated noun are also in bold.

There are no special national conditions causing a deviation from this European Standard, other than those listed in Annex ZA to EN 60335-1.

There are no national deviations from this European Standard, other than those listed in Annex ZB to EN 60335-1.

p NOTE In this document, p is used in the margin to indicate instructions for preparing the printed version.

Introduction

p Add:

An investigation by CENELEC TC 61 has shown that all risks from products within the scope of this standard are fully covered by the Low Voltage Directive, 73/23/EEC. For products having mechanical moving parts, a risk assessment in accordance with the Machinery Directive, 98/37/EC, has shown that the risks are mainly of electrical origin and consequently this directive is not applicable. However, the relevant essential safety requirements of the Machinery Directive are covered by this standard together with the principal objectives of the Low Voltage Directive.

Endorsement notice

The text of the International Standard IEC 60335-2-76:2002 was approved by CENELEC as a European Standard with agreed common modifications as given below.

CONTENTS

| | | |
|--|--|----|
| 1 | Scope | 7 |
| 2 | Normative references..... | 7 |
| 3 | Definitions | 7 |
| 4 | General requirement..... | 11 |
| 5 | General conditions for the tests | 11 |
| 6 | Classification | 12 |
| 7 | Marking and instructions | 12 |
| 8 | Protection against access to live parts | 13 |
| 9 | Starting of motor-operated appliances | 14 |
| 10 | Power input and current..... | 14 |
| 11 | Heating..... | 14 |
| 12 | Void | 15 |
| 13 | Leakage current and electric strength at operating temperature | 15 |
| 14 | Transient overvoltages..... | 15 |
| 15 | Moisture resistance..... | 17 |
| 16 | Leakage current and electric strength | 17 |
| 17 | Overload protection of transformers and associated circuits..... | 18 |
| 18 | Endurance | 18 |
| 19 | Abnormal operation..... | 19 |
| 20 | Stability and mechanical hazards..... | 21 |
| 21 | Mechanical strength..... | 21 |
| 22 | Construction | 21 |
| 23 | Internal wiring | 24 |
| 24 | Components | 24 |
| 25 | Supply connection and external flexible cords..... | 24 |
| 26 | Terminals for external conductors | 25 |
| 27 | Provision for earthing..... | 26 |
| 28 | Screw and connections | 26 |
| 29 | Clearances, creepage distances and solid insulation | 26 |
| 30 | Resistance to heat and fire | 26 |
| 31 | Resistance to rusting | 27 |
| 32 | Radiation, toxicity and similar hazards | 27 |
| Annexes..... | | 30 |
| Annex AA (informative) Circuit for the independent control of the switching speed of the major pulse-switching device..... | | 32 |
| Annex BB (normative) Instructions for installation and connection of electric fences | | 33 |
| Annex CC (informative) Installation of electric security fences..... | | 39 |
| Bibliography..... | | 43 |

Figure 101 – Schematic examples of the different types of battery-operated energizers suitable for connection to the mains28

Figure 102 – Current limited energizer characteristic limit line.....29

Figure AA.1 – Circuit for the independent control of the switching speed of the major pulse-switching device32

Figure BB.1 – Symbol for warning sign.....38

Figure CC1 – Prohibited area for pulse conductors40

Figure CC2 – Typical constructions where an electric security fence is exposed to the public41

Figure CC3 – Typical fence constructions where the electric security fence is installed in windows and skylights42

Table 101 – Battery source impedance15

Table 102 – Additional test voltages.....17

Table BB 1 – Minimum clearances from power lines for electric animal fences34

Table BB 2 – Minimum clearances from power lines for electric security fences36

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, feral animal control 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

- 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)*