SVENSK STANDARD SS-EN 60335-1

Fastställd	Utgåva	Sida	Ingår i
2002-12-04	4	1 (1+136)	SEK Område 61

Svenska Elektriska Kommissionen, SEK

Elektriska hushållsapparater och liknande bruksföremål – Säkerhet – Del 1: Allmänna fordringar

Household and similar electrical appliances – Safety – Part 1: General requirements

Som svensk standard gäller europastandarden EN 60335-1:2002. Den svenska standarden innehåller den officiella engelska språkversionen av EN 60335-1:2002.

Nationellt förord

Europastandarden EN 60335-1:2002

består av:

– **europastandardens ikraftsättningsdokument,** utarbetat inom CENELEC

– **IEC 60335-1, Fourth edition, 2001 - Household and similar electrical appliances - Safety - Part 1: General requirements**

utarbetad inom International Electrotechnical Commission, IEC.

Tidigare utgivna svenska standarder SS 433 07 01, utgåva 3, 1998, SS-EN 60335-1, utgåva 2, 1990 och SS-EN 60335-1, utgåva 3, 1995, benämnda Del 1, fortsätter att gälla tillsammans med de svenska standarder för olika apparatslag som utgör Del 2 till respektive standard och som hänvisar till dessa.

SS-EN 60335-1, utgåva 4, 2002, Del 1, gäller endast i det fall det finns en Del 2 för det apparatslag som skall provas. Där så befinns rimligt kan dock Del 1 tillämpas på apparatslag som ej omfattas av någon Del 2, i vilket fall SS-EN 60335-1, utgåva 3, 1995, inte gäller fr o m 2008-07-01.

ICS 13.120; 97.030

Denna standard är fastställd av Svenska Elektriska Kommissionen, SEK,
som också kan lämna upplysningar om **sakinnehållet** i standarden.
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EUROPEAN STANDARD **EN 60335-1**

NORME EUROPÉENNE

EUROPÄISCHE NORM October 2002

ICS 13.120; 97.030

Supersedes EN 60335-1:1994 + A11:1995 + A12:1996 + A1:1996 + A13:1998 + A14:1998 + A2:2000 + A15:2000 + A16:2001

English version

Household and similar electrical appliances - Safety
Part 1: General requirements
(IEC 60335-1:2001, modified)

Appareils électrodomestiques et analogues - Sécurité
Partie 1: Prescriptions générales
(CEI 60335-1:2001, modifiée)

Sicherheit elektrischer Geräte für den Hausgebrauch und ähnliche Zwecke
Teil 1: Allgemeine Anforderungen
(IEC 60335-1:2001, modifiziert)

This European Standard was approved by CENELEC on 2002-07-02. 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, Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Luxembourg, Malta, Netherlands, Norway, Portugal, Slovakia, 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

Ref. No. EN 60335-1:2002 E

Foreword

The text of document 61/1965/FDIS, future fourth edition of IEC 60335-1, prepared by the IEC Technical Committee 61, was submitted to the IEC-CENELEC parallel vote in January 2001. The comments were discussed during the Delft meeting of CENELEC TC 61 in May 2001 when it was decided to submit some common modifications to the formal vote (2MV).

This draft was circulated in November 2001, but did not receive sufficient support. The comments were discussed during the Kista meeting of CENELEC TC 61 in May 2002 when it was decided to retain only the common modifications from the previous edition. This new draft was approved by CENELEC as EN 60335-1 on 2002-07-02.

The following date is 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) 2003-07-01

This European Standard replaces EN 60335-1:1994 and its amendments. However, EN 60335-1:1994 remains valid until all the parts 2 that are used in conjunction with it have been withdrawn. No date of withdrawal of conflicting national standards (dow) has therefore been fixed. However, when Part 1 is used for appliances not covered by a part 2, EN 60335-1:1994 is not to be used after 2008-07-01.

This part of EN 60335 is to be used in conjunction with the appropriate part 2. The parts 2 contain clauses to supplement or modify the corresponding clauses in Part 1 to provide the relevant requirements for each type of appliance.

NOTE 1 Subclauses, notes and annexes that are additional to those in IEC 60335-1 are prefixed with the letter Z.

Special national conditions causing a deviation from this European Standard are listed in Annex ZA.

National deviations from this European Standard are listed in Annex ZB.

Annexes B, C, D, E, F, G, H, I, J, K, M, N, ZA and ZC are normative and form an integral part of this standard.

Annexes A, L, O, ZB and ZD are for information only.

NOTE 2 The following annexes contain provisions suitably modified from other IEC standards:

–	Annex E	Needle flame test	IEC 60695-2-2
–	Annex F	Capacitors	IEC 60384-14
–	Annex G	Safety isolating transformers	IEC 61558-1 and IEC 61558-2-6
–	Annex H	Switches	IEC 61058-1
–	Annex J	Coated printed circuit boards	IEC 60664-3
–	Annex N	Proof tracking test	IEC 60112

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 the associated noun are also in bold.

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

Endorsement notice

The text of the International Standard IEC 60335-1:2001, excluding the corrigendum January 2002, was approved by CENELEC as a European Standard with agreed common modifications as given below.

Annex ZC
(normative)

Normative references to international publications with their corresponding European publications

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies (including amendments).

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

Publication	Year	Title	EN/HD	Year
IEC 60051-2	1984	Direct acting indicating analogue electrical measuring instruments and their accessories -- Part 2: Special requirements for ammeters and voltmeters	EN 60051-2	1989
IEC 60061-1 (mod)	-[1)]	Lamp caps and holders together with gauges for the control of interchangeability and safety -- Part 1: Lamp caps	EN 60061-1	1993[2)]
IEC 60065 (mod)	1998	Audio, video and similar electronic apparatus - Safety requirements	EN 60065 + corr. June	1998 1999
IEC 60068-2-32	-[1)]	Environmental testing -- Part 2: Tests - Test Ed: Free fall (procedure 1)	EN 60068-2-32	1993[2)]
IEC 60068-2-75	-[1)]	Environmental testing -- Part 2-75: Tests - Test Eh: Hammer tests	EN 60068-2-75	1997[2)]
IEC/TR 60083	-[1)]	Plugs and socket-outlets for domestic and similar general use standardized in member countries of IEC	-	-
IEC 60085	-[1)]	Thermal evaluation and classification of electrical insulation	HD 566 S1	1990[2)]
IEC 60112	1979	Method for determining the comparative and the proof tracking indices of solid insulating materials under moist conditions	HD 214 S2	1980[2)]
EN 60127	Series	Miniature fuses	EN 60127	Series
IEC 60227[3)]	Series	Polyvinyl chloride insulated cables of rated voltages up to and including 450/750 V	-	-

[1)] undated reference
[2)] valid edition at date of issue
[3)] The HD 21 series, which is related to, but not directly equivalent with the IEC 60227 series, applies instead.

Publication	Year	Title	EN/HD	Year
IEC 60238	-[1)]	Edison screw lampholders	EN 60238 + corr. February	1998[2)] 1999
IEC 60245 [4)]	Series	Rubber insulated cables of rated voltages up to and including 450/750 V	-	-
IEC 60249-2-4	-[1)]	Base materials for printed circuits -- Part 2: Specifications -- Specification No. 4: Epoxide woven glass fabric copper-clad laminated sheet, general purpose grade	EN 60249-2-4 + corr. March	1994[2)] 1994
IEC 60249-2-5	-[1)]	Base materials for printed circuits -- Part 2: Specifications -- Specification No. 5: Epoxide woven glass fabric copper-clad laminated sheet of defined flammability (vertical burning test)	EN 60249-2-5 + corr. March	1994[2)] 1994
IEC 60252	-[1)]	AC motor capacitors	-	-
IEC 60320-1 (mod)	1994	Appliance couplers for household and similar general purposes -- Part 1: General requirements	EN 60320-1	1996
IEC 60320-2-3	-[1)]	Appliance couplers for household and similar general purposes -- Part 2-3: Appliance coupler with a degree of protection higher than IPX0	EN 60320-2-3	1998[2)]
IEC 60384-14	1993	Fixed capacitors for use in electronic equipment -- Part 14: Sectional specification: Fixed capacitors for electromagnetic interference suppression and connection to the supply mains	-	-
IEC 60417	Series	Graphical symbols for use on equipment	EN 60417	Series
IEC 60529	-[1)]	Degrees of protection provided by enclosures (IP Code)	EN 60529 + corr. May	1991[2)] 1993
IEC 60598-1 (mod)	1999	Luminaires Part 1: General requirements and tests	EN 60598-1 + A11 + A12	2000 2000 2002
IEC 60664-1 (mod)	1992	Insulation coordination for equipment within low-voltage systems -- Part 1: Principles, requirements and tests	HD 625.1 S1 + corr. November	1996 1996
IEC 60664-3	1992	Insulation coordination for equipment within low-voltage systems -- Part 3: Use of coatings to achieve insulation coordination of printed board assemblies	HD 625.3 S1	1997

[4)] The HD 22 series, which is related to, but not directly equivalent with the IEC 60245 series, applies instead.

Publication	Year	Title	EN/HD	Year
IEC 60695-2-2	1991	Fire hazard testing -- Part 2: Test methods -- Section 2: Needle-flame test	EN 60695-2-2	1994
IEC 60695-2-11	-[1)]	Fire hazard testing -- Part 2-11: Glowing/hot-wire based test methods - Glow-wire flammability test method for end-products	EN 60695-2-11	2001[2)]
IEC 60695-2-12	-[1)]	Fire hazard testing -- Part 2-12: Glowing/hot-wire based test methods - Glow-wire flammability test method for materials	EN 60695-2-12	2001[2)]
IEC 60695-2-13	-[1)]	Fire hazard testing -- Part 2-13: Glowing/hot-wire based test methods - Glow-wire ignitability test method for materials	EN 60695-2-13	2001[2)]
IEC 60695-10-2	-[1)]	Fire hazard testing -- Part 10: Guidance and test methods for the minimization of the effects of abnormal heat on electrotechnical products involved in fires -- Section 2: Method for testing products made from non-metallic materials for resistance to heat using the ball pressure test	-	-
IEC 60695-11-10	1999	Fire hazard testing -- Part 11-10: Test flames - 50 W horizontal and vertical flame test methods	EN 60695-11-10	1999
IEC 60730-1 (mod)	1999	Automatic electrical controls for household and similar use -- Part 1: General requirements	EN 60730-1	2000
IEC 60738-1	-[1)]	Thermistors - Directly heated positive step-function temperature coefficient -- Part 1: Generic specification	EN 60738-1	1999[2)]
IEC 60906-1	-[1)]	IEC System of plugs and socket-outlets for household and similar purposes -- Part 1: Plugs and socket-outlets 16 A 250 V a.c.	-	-
IEC 60990	1999	Methods of measurement of touch current and protective conductor current	EN 60990	1999
IEC 60998-2-1 (mod)	-[1)]	Connecting devices for low-voltage circuits for household and similar purposes -- Part 2-1: Particular requirements for connecting devices as separate entities with screw-type clamping units	EN 60998-2-1	1993[2)]

Publication	Year	Title	EN/HD	Year
IEC 60998-2-2	-[1)]	Connecting devices for low-voltage circuits for household and similar purposes -- Part 2-2: Particular requirements for connecting devices as separate entities with screwless-type clamping units	EN 60998-2-2	1993[2)]
IEC 60999-1	-[1)]	Connecting devices - Electrical copper conductors - Safety requirements for screw-type and screwless-type clamping units -- Part 1: General requirements and particular requirements for clamping units for conductors from 0,2 mm² up to 35 mm² (included)	EN 60999-1	2000[2)]
IEC 61032	1997	Protection of persons and equipment by enclosures - Probes for verification	EN 61032	1998
IEC 61058-1	2000	Switches for appliances -- Part 1: General requirements	-	-
IEC 61180-1	-[1)]	High-voltage test techniques for low-voltage equipment -- Part 1: Definitions, test and procedure requirements	EN 61180-1	1994[2)]
IEC 61180-2	-[1)]	High-voltage test techniques for low-voltage equipment -- Part 2: Test equipment	EN 61180-2	1994[2)]
IEC 61558-1 (mod)	1997	Safety of power transformers, power supply units and similar -- Part 1: General requirements and tests	EN 61558-1	1997
IEC 61558-2-6	1997	Safety of power transformers, power supply units and similar -- Part 2-6: Particular requirements for safety isolating transformers for general use	EN 61558-2-6	1997
IEC 61643-1	-[1)]	Surge protective devices connected to low-voltage power systems -- Part 1: Requirements and tests	-	-
ISO 1463	-[1)]	Metallic and oxide coatings - Measurement of coating thickness - Microscopical method	EN ISO 1463	1994[2)]
ISO 2178	-[1)]	Non-magnetic coatings on magnetic substrates - Measurement of coating thickness - Magnetic method	-	-
ISO 2768-1	-[1)]	General tolerances Part 1: Tolerances for linear and angular dimensions without individual tolerance indications	EN 22768-1	1993[2)]

Publication	Year	Title	EN/HD	Year
ISO 7000	-[1)]	Graphical symbols for use on equipment - Index and synopsis	-	-
ISO 9772	1994	Cellular plastics - Determination of horizontal burning characteristics of small specimens subjected to a small flame	-	-

CONTENTS

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 the functions of an appliance are covered by different parts 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 2” is mentioned, it refers to the relevant part of IEC 60335.

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.

Individual countries may wish to consider the application of the standard, as far as is reasonable, to appliances not mentioned in a part 2, and to appliances designed on new principles.

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.

NOTE 2 Standards dealing with non-safety aspects of household appliances are

– IEC standards published by TC 59 concerning methods of measuring performance;

– CISPR 11, CISPR 14-1, IEC 61000-3-2 and IEC 61000-3-3 concerning electromagnetic emissions;

– CISPR 14-2 concerning electromagnetic immunity.

HOUSEHOLD AND SIMILAR ELECTRICAL APPLIANCES – SAFETY –

Part 1: General requirements

1 Scope

This International Standard deals with the safety of electrical appliances for household and similar purposes, their **rated voltage** being not more than 250 V for single-phase appliances and 480 V for other appliances.

Appliances not intended for normal household use but which nevertheless may be a source of danger to the public, such as appliances intended to be used by laymen in shops, in light industry and on farms, are within the scope of this standard.

NOTE 1 Examples of such appliances are catering equipment, cleaning appliances for industrial and commercial use, and appliances for hairdressers.

As far as is practicable, this standard deals with the common hazards presented by appliances that are encountered by all persons in and around the home. However, in general, it does not take into account

– the use of appliances by young children or infirm persons without supervision,
– playing with the appliance by young children.

NOTE 2 Attention is drawn to the fact that

– for appliances intended to be used in vehicles or on board ships or aircraft, additional requirements may be necessary;
– for appliances intended to be used in tropical countries, special 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 3 This standard does not apply to

– appliances intended exclusively for industrial purposes;
– 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);
– audio, video and similar electronic apparatus (IEC 60065);
– appliances for medical purposes (IEC 60601);
– hand-held motor-operated electric tools (IEC 60745);
– personal computers and similar equipment (IEC 60950);
– transportable motor-operated electric tools (IEC 61029).

2 Normative references

The following normative documents contain provisions which, through reference in this text, constitute provisions of this International Standard. For dated references, subsequent amendments to, or revisions of, any of these publications do not apply. However, parties to agreements based on this International Standard are encouraged to investigate the possibility of applying the most recent editions of the normative documents indicated below. For undated references, the latest edition of the normative document referred to applies. Members of IEC and ISO maintain registers of currently valid International Standards.

IEC 60051-2:1984, *Direct acting indicating analogue electrical measuring instruments and their accessories – Part 2: Special requirements for ammeters and voltmeters*

IEC 60061-1, *Lamp caps and holders together with gauges for the control of interchangeability and safety – Part 1: Lamp caps*

IEC 60065:1998, *Audio, video and similar electronic apparatus – Safety requirements*

IEC 60068-2-32, *Environmental testing – Part 2: Tests – Test Ed: Free fall (Procedure 1)*

IEC 60068-2-75, *Environmental testing – Part 2-75: Tests – Test Eh: Hammer tests*

IEC/TR3 60083, *Plugs and socket-outlets for domestic and similar general use standardized in member countries of IEC*

IEC 60085, *Thermal evaluation and classification of electrical insulation*

IEC 60112:1979, *Method for determining the comparative and the proof tracking indices of solid insulating materials under moist conditions*

IEC 60127 (all parts), *Miniature fuses*

IEC 60227 (all parts), *Polyvinyl chloride insulated cables of rated voltages up to and including 450/750 V*

IEC 60238, *Edison screw lampholders*

IEC 60245 (all parts), *Rubber insulated cables – Rated voltages up to and including 450/750 V*

IEC 60249-2-4, *Base materials for printed circuits – Part 2: Specifications – Specification No. 4: Epoxide woven glass fabric copper-clad laminated sheet, general purpose grade*

IEC 60249-2-5, *Base materials for printed circuits – Part 2: Specifications – Specification No. 5: Epoxide woven glass fabric copper-clad laminated sheet of defined flammability (vertical burning test)*

IEC 60252, *A.C. motor capacitors*

IEC 60320-1:1994, *Appliance couplers for household and similar general purposes – Part 1: General requirements*

IEC 60320-2-3, *Appliance couplers for household and similar general purposes – Part 2-3: Appliance coupler with a degree of protection higher than IPX0*

IEC 60384-14:1993, *Fixed capacitors for use in electronic equipment – Part 14: Sectional specification: Fixed capacitors for electromagnetic interference suppression and connection to the supply mains*

IEC 60417 (all parts), *Graphical symbols for use on equipment*

IEC 60529, *Degrees of protection provided by enclosures (IP Code)*

IEC 60598-1:1999, *Luminaires – Part 1: General requirements and tests*

IEC 60664-1:1992, *Insulation coordination for equipment within low-voltage systems – Part 1: Principles, requirements and tests*

IEC 60664-3:1992, *Insulation coordination for equipment within low-voltage systems – Part 3: Use of coatings to achieve insulation coordination of printed board assemblies*

IEC 60695-2-2:1991, *Fire hazard testing – Part 2: Test methods – Section 2: Needle-flame test*

IEC 60695-2-11, *Fire Hazard testing – Part 2-11: Glowing/hot wire based test methods – Glow-wire flammability test method for end-products*

IEC 60695-2-12, *Fire Hazard testing – Part 2-12: Glowing/hot wire based test methods – Glow-wire flammability test method for materials*

IEC 60695-2-13, *Fire Hazard testing – Part 2-13: Glowing/hot wire based test methods – Glow-wire ignitability test method for materials*

IEC 60695-10-2, *Fire hazard testing – Part 10: Guidance and test methods for the minimization of the effects of abnormal heat on electrotechnical products involved in fires – Section 2: Method for testing products made from non-metallic materials for resistance to heat using the ball pressure test*

IEC 60695-11-10:1999, *Fire hazard testing – Part 11-10: Test flames – 50 W horizontal and vertical flame test methods*

IEC 60730-1:1999, *Automatic electrical controls for household and similar use – Part 1: General requirements*

IEC 60738-1, *Thermistors – Directly heated positive step-function temperature coefficient – Part 1: Generic specification*

IEC 60906-1, *IEC system of plugs and socket-outlets for household and similar purposes – Part 1: Plugs and socket-outlets 16 A 250 V a.c.*

IEC 60990:1999, *Methods of measurement of touch-current and protective conductor current*

IEC 60998-2-1, *Connecting devices for low voltage circuits for household and similar purposes – Part 2-1: Particular requirements for connecting devices as separate entities with screw-type clamping units*

IEC 60998-2-2, *Connecting devices for low voltage circuits for household and similar purposes – Part 2-2: Particular requirements for connecting devices as separate entities with screwless-type clamping units*

IEC 60999-1, *Connecting devices – Electrical copper conductors – Safety requirements for screw-type and screwless-type clamping units – Part 1: General requirements and particular requirements for clamping units for conductors from 0,2 mm^2 up to 35 mm^2 (included)*

IEC 61032:1997, *Protection of persons and equipment by enclosures – Probes for verification*

IEC 61058-1:2000, *Switches for appliances – Part 1: General requirements*

IEC 61180-1, *High-voltage test techniques for low-voltage equipment. Part 1: Definitions, test and procedure requirements*

IEC 61180-2, *High-voltage techniques for low-voltage equipment – Part 2: Test equipment*

IEC 61558-1:1997, *Safety of power transformers, power supply units and similar – Part 1: General requirements and tests*

IEC 61558-2-6:1997, *Safety of power transformers, power supply units and similar – Part 2: Particular requirements for safety isolating transformers for general use*

IEC 61643-1, *Surge protective devices connected to low-voltage power distribution systems – Part 1: Performance requirements and testing methods.*

ISO 1463, *Metallic and oxide coatings – Measurement of coating thickness – Microscopical method*

ISO 2178, *Non-magnetic coatings on magnetic substrates – Measurement of coating thickness – Magnetic method*

ISO 2768-1, *General tolerances – Part 1: Tolerances for linear and angular dimensions without individual tolerance indications*

ISO 7000, *Graphical symbols for use on equipment – Index and synopsis*

ISO 9772:1994, *Cellular plastics – Determination of horizontal burning characteristics of small specimens subjected to a small flame*