

Safety of electric toys

The European Standard EN 50088:1996, incorporating amendments A1:1996, A2:1997, A3:2002 and A4:2005, has the status of a British Standard

ICS 97.200.50

National foreword

This British Standard is the UK implementation of EN 50088:1996, incorporating amendments A1:1996, A2:1997, A3:2002 and A4:2005, and corrigenda April 2001 and August 2007.

EN 50088 supersedes HD 271 S1:1982 and its amendments. However, HD 271 S1 was not implemented in the United Kingdom as a British Standard.

The start and finish of text introduced or altered by CENELEC amendment is indicated in the text by tags **A1** **A1**. Tags indicating changes to CENELEC text carry the number of the CENELEC amendment. For example, text altered by CENELEC amendment A1 is indicated by **A1** **A1**.

The UK participation in its preparation was entrusted by Technical Committee CPL/61, Safety of domestic appliances, to Subcommittee CPL/61/21, Toys.

A list of organizations represented on this subcommittee can be obtained on request to its secretary.

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

Compliance with a British Standard cannot confer immunity from legal obligations.

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February 1996

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English version

Safety of electric toys

Sécurité des jouets électriques

Sicherheit elektrischer Spielzeuge

This European Standard was approved by CENELEC on 1995-11-28. 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, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

CENELEC

European Committee for Electrotechnical Standardization
Comité Européen de Normalisation Electrotechnique
Europäisches Komitee für Elektrotechnische Normung

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Foreword

A proposal for a standard dealing with requirements for the safety of electric toys, document CLC/TC 61 (SEC) 702, was circulated under the enquiry procedure in September 1989. This proposal was discussed during the Helsinki meeting in May 1990, when it was decided to prepare a new draft.

Subsequent decisions took place during the meetings in

Brussels, November 1991;

Berlin, February 1993;

Oslo, April 1994;

Paris, November 1994;

and Dublin, May 1995.

During the Dublin meeting it was decided to submit a new draft to the voting procedure (fourth vote).

This draft was circulated in July 1995 and was ratified by CENELEC as EN 50088 on 1995-11-28.

This European Standard has been prepared by the Secretariat of CENELEC Technical Committee TC 61.

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) 1996-06-01
- latest date by which the national standards conflicting with the EN have to be withdrawn (dow) 1998-10-01

This European Standard replaces HD 271 S1:1982 and its amendments.

There are no special national conditions (snc) causing a deviation from this European Standard.

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

Annex C, Annex E, Annex F, Annex G and Annex H are normative. Annex A, Annex B and Annex D are informative.

NOTE 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.

Foreword to amendment A1

A proposal to amend prEN 50088:1995 was discussed during the Paris meeting in November 1994 when it was decided to submit a draft for an amendment to the formal vote.

This procedure started in February 1995 (prAA) but due to the comments received a further discussion of the draft was necessary during the Dublin meeting in May 1995 where it was decided to submit the modified draft to the voting procedure.

This draft was circulated as prAB in July 1995 and was ratified by CENELEC as amendment A1 on 1995-11-28.

This amendment has been prepared by the secretariat of CENELEC Technical Committee TC 61.

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- latest date by which the national standards conflicting with the EN have to be withdrawn (dow) 1998-10-01

This amendment supplements or modifies the corresponding clauses of EN 50088:1996.

Foreword to amendment A2

A proposal to amend EN 50088:1996, document CLC/TC 61 (SEC) 1048, was circulated under the enquiry procedure in September 1995. This proposal was discussed during the Copenhagen meeting in May 1996, when it was decided to submit a draft for an amendment to EN 50088 to the formal vote.

This draft was circulated as prAC in November 1996 and was approved by CENELEC as amendment A2 on 1997-07-01.

This amendment has been prepared by the secretariat of CENELEC Technical Committee TC 61.

The following dates are applicable:

- latest date by which the amendment has to be implemented at national level by publication of an identical national standard or by endorsement (dow) 1998-03-01
- date on which national standards conflicting with the amendment have to be withdrawn (dow) 2000-03-01

This amendment supplements or modifies the corresponding clauses of EN 50088:1996.

Foreword to amendment A3

A proposal to amend EN 50088:1996, document CLC/TC 61(SEC)1219A, was discussed during the Pamplona meeting in June 1999, when it was decided to submit a draft for an amendment to EN 50088 to the Unique Acceptance Procedure.

This draft was circulated in August 1999. The comments were discussed during the Kristiansand meeting in June 2000, when it was decided to submit a new draft to the formal vote. This draft was circulated in February 2001. The comments were discussed during the Delft meeting in May 2001, when it was decided to submit a further draft to the formal vote (2MV).

This draft was circulated in October 2001 and was approved by CENELEC as amendment A3 to EN 50088 on 2002-03-01.

The following dates were fixed:

- latest date by which the amendment has to be implemented at national level by publication of an identical national standard or by endorsement (dow) 2003-03-01
- date on which national standards conflicting with the amendment have to be withdrawn (dow) 2005-03-01

This amendment supplements or modifies the corresponding clauses of EN 50088:1996.

Foreword to amendment A4

A proposal to amend EN 50088:1996 was discussed during the Balsthal meeting of CENELEC TC 61 in June 2004 when it was decided to delay the “dow” for the laser part of EN 50088:1996/A3:2002, Annex I.

During the Milan meeting in November 2004, it was decided instead to delete Annex I because its content is covered by the new EN 62115:2005, which is replacing EN 50088 and its amendments.

The draft amendment, prepared by the Technical Committee CENELEC TC 61, was submitted to the formal vote in May 2005 and was approved by CENELEC as amendment A4 to EN 50088:1996 on 2005-11-01.

The following dates are applicable:

- latest date by which the amendment has to be implemented at national level by publication of an identical national standard or by endorsement (dow) 2006-05-01
- date on which national standards conflicting with the amendment have to be withdrawn (dow) 2006-05-01

This amendment supplements or modifies the corresponding clauses of EN 50088:1996.

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Introduction

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

As a general rule, toys are designed and manufactured for particular categories of children. Their characteristics are related to the age and stage of development of the children and their intended use presupposes certain capabilities.

Accidents are frequently due to a toy either being given to a child for whom it is not intended or being used for a purpose other than for which it was designed. It is assumed that when choosing a toy or a game, account is taken of the physical and mental development of the child who will be playing with it.

The aim of this standard is to reduce risks when playing with toys, especially those risks which are not evident to users. However, it has to be recognized that some toys have risks inherent to their use which cannot be avoided. Consideration has been given to reasonably foreseeable use, bearing in mind that children are not generally as careful as adults.

Whilst this standard applies to new toys, it nevertheless takes into account the wear and tear of toys in use.

The fact that a toy complies with this standard does not absolve parents and other persons in charge of the child from the responsibility of supervising the child.

This standard covers the whole range of electric toys from small button cell operated lights to large sit-on cars powered by lead-acid cells. This results in different requirements and tests according to the type of toy. The criteria for the selection of the tests to be applied to the various types of toys are given in clause 6.

In order to comply with this standard, electric toys also have to comply with EN 71.

A toy which complies with the text of this standard will not necessarily be judged 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.

A toy 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 judged to comply with the standard.

This standard covers the essential safety requirements concerning the electrical properties, stated in Annex II of EC Directive 88/378/EEC¹⁾ on the safety of toys.

This standard does not cover the disposal of batteries which contain materials which are hazardous to the environment, dealt with in EC Directive 91/157/EEC and 93/86/EEC²⁾ on batteries.

¹⁾ 88/378/EEC — Council Directive of 3 May 1988 on the approximation of the laws of the Member States concerning the safety of toys.

²⁾ 91/157/EEC — Council Directive of 18 March 1991 on batteries and accumulators containing certain dangerous substances.
93/86/EEC — Council Directive of 4 October 1993 adapting to technical progress Council Directive 91/157/EEC on batteries and accumulators containing certain dangerous substances.

1 Scope

This standard deals with the safety of electric toys. ^{A2} This standard also applies to electric **constructional sets**, electric **functional toys** and to **experimental sets**.

NOTE Requirements for **experimental sets** are given in Annex H. ^{A2}

Toys using electricity for functions other than the principal function are within the scope of this standard.

NOTE 1 A doll's house having an interior lamp is an example of such **toys**.

NOTE 2 The supply voltage may be obtained from a separate **transformer for toys** or from batteries which may be contained within the **toy** or in a **battery box**.

NOTE 3 **Transformers for toys** and battery chargers are not considered to be a **toy**, even if supplied with it.

If the packaging in which the **toy** is sold is also intended to be played with, it is considered to be part of the **toy**.

NOTE 4 This standard does not apply to

- **portable child-appealing luminaires** (EN 60598-2-10).
- Furthermore, with respect to Annex I of the EC directive concerning the safety of toys, this standard does not apply to
 - christmas decorations;
 - **scale models for adult collectors**;
 - equipment intended to be used collectively in playgrounds;
 - sports equipment;
 - aquatic equipment intended to be used in deep water;
 - folk dolls and decorative dolls and other similar articles for adult collectors;
 - professional **toys** installed in public places (shopping centres, stations, etc.);
 - fireworks, including percussion caps;
 - sets of darts with metallic points;
 - ovens, irons or other **functional products** supplied at a voltage exceeding 24 V;
 - products containing heating elements intended for use under the supervision of an adult in a teaching context;
 - vehicles with combustion engines;
 - toy steam engines;
 - bicycles designed for sport or for travel on the public highway;
 - **video toys** which can be connected to a video screen, and which are supplied at a voltage exceeding 24 V;
 - faithful reproductions of real fire arms;
 - fashion jewellery for children.

For hazards other than those caused by electricity, EN 71 is applicable.

^{A4} Note deleted ^{A4}

2 Normative references

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).

Reference	Year	Title
^{A3} EN 71	series	<i>Safety of toys</i>
EN 71-1	1998	<i>Safety of toys — Part 1: Mechanical and physical properties</i>
EN 71-3	1994	<i>Safety of toys — Part 3: Migration of certain elements</i>
EN 60068-2-75	1997	<i>Environmental testing — Part 2-75: Tests — Test Eh: Hammer tests</i> (IEC 60068-2-75:1997)
EN 60086-2	2001	<i>Primary batteries — Part 2: Physical and electrical specifications</i> (IEC 60086-2:2000)
EN 60320-1	2001	<i>Appliance couplers for household and similar general purposes — Part 1: General requirements</i> (IEC 60320-1:2001) ^{A3}

Reference	Year	Title
Ⓐ ₃ EN 60335-1	1994	<i>Safety of household and similar electrical appliances — Part 1: General requirements</i> (IEC 60335-1:1991, mod.)
EN 60417	series	<i>Graphical symbols for use on equipment</i> (IEC 60417 series)
EN 60529	1991	<i>Degrees of protection provided by enclosures (IP Code)</i> (IEC 60529:1989)
EN 60695-2-2	1994	<i>Fire hazard testing — Part 2: Test methods — Section 2: Needle-flame test</i> (IEC 60695-2-2:1991)
EN 60695-2-11	2001	<i>Fire hazard testing — Part 2-11: Glowing/hot-wire based test methods — Glow-wire flammability test method for end-products</i> (IEC 60695-2-11:2000)
EN 60707	1999	<i>Flammability of solid non-metallic materials when exposed to flame sources — List of test methods</i> (IEC 60707:1999)
EN 60730	series	<i>Automatic electrical controls for household and similar use</i> (IEC 60730, mod.)
Ⓐ ₄ Text deleted Ⓐ ₄		
EN 61058-1	1992	<i>Switches for appliances — Part 1: General requirements</i> (IEC 61058-1:1990)
EN 61558-2-7	1997	<i>Safety of power transformers, power supply units and similar — Part 2-7: Particular requirements for transformers for toys</i> (IEC 61558-2-7:1997, mod.)
IEC 60384-14	1993	<i>Fixed capacitors for use in electronic equipment — Part 14: Sectional specification: Fixed capacitors for electromagnetic interference suppression and connection to the supply mains</i>
IEC 60083	1997	<i>Plugs and socket-outlets for domestic and similar general use standardized in member countries of IEC</i> Ⓐ ₃

3 Definitions

For the purpose of this standard, the following definitions apply.

3.1.1

toy

product designed or clearly intended for use in play by children under 14 years old

3.1.2

electric toy

toy having at least one function dependent on electricity

NOTE Non-electric parts are considered to be parts of the **toy**.

3.1.3

battery toy

toy which contains or uses one or more batteries as the only source of electrical energy

NOTE The batteries may be in a **battery box**.

3.1.4

transformer toy

toy which is connected to the supply mains through a **transformer for toys** and using the supply mains as the only source of electrical energy

3.1.5

dual supply toy

toy which can be operated simultaneously or alternatively as a **battery toy** and a **transformer toy**

Ⓐ₃ 3.1.6

battery box

separate compartment for containing batteries that is detachable from the **toy** Ⓐ₃

3.1.7

safety isolating transformer

transformer, the input winding of which is electrically separated from the output winding by an insulation at least equivalent to double insulation or reinforced insulation, and which is designed to supply an appliance or circuit at safety extra-low voltage

3.1.8

transformer for toys

safety isolating transformer specially designed to supply **toys** operating at safety extra-low voltage not exceeding 24 V A3 *Text deleted* A3

NOTE Either a.c. or d.c. or both may be delivered from **the transformer**.

3.2.1

constructional set

collection of electric, electronic or mechanical parts intended to be assembled as various **toys**

3.2.2

A2 **experimental set**

collection of electric or electronic components intended to be assembled in various combinations by children aged 8 years and older

NOTE 1 The main aim of an **experimental set** is to facilitate the acquiring of knowledge by experiment and research. It is not intended to create a **toy** or equipment for practical use.

NOTE 2 **Experimental sets** may include mechanical parts. The aim of the experiments may be to demonstrate physical phenomena, or electrical or mechanical functions. A2

3.2.3

functional toy

toy with a **rated voltage** not exceeding 24 V and which is a model of an appliance or installation used by adults

A3 NOTE A product with a **rated voltage** exceeding 24 V, intended to be used by children under the direct supervision of an adult and which is a model of an appliance or installation and used in the same way, is known as a functional product. A3

3.2.4

portable child-appealing luminaire

a luminaire that in normal use can be moved from one place to another while connected to the supply, and which is constructed to represent a model, person or animal such that due to the design and materials used it could be treated, by a child, as a **toy** [EN 60598-2-10]

3.2.5

scale model for adult collectors

detailed model with or without accessories and being faithful to scale

NOTE **Scale models for adult collectors** are often expensive and sensitive to rough handling. The packaging, instructions and marketing will be different from that used for **toys**.

3.2.6

video toy

toy consisting of a screen and activating means by which the child can play and interact with the picture shown on the screen

NOTE 1 All parts necessary for the operation of the **video toy**, such as control box, joy stick, key board, monitor and connections, are considered to be part of the **toy**.

NOTE 2 Separate supply transformers and separate monitors (including TV sets) having **rated voltages** exceeding 24 V are not considered to be part of the **video toy**.

3.3 Where the terms voltages and current are used, they imply r.m.s. values unless otherwise specified.

3.3.1

rated voltage

voltage assigned to the **toy** by the manufacturer

3.3.2**working voltage**

maximum voltage to which the part under consideration is subjected when the **toy** is supplied at its **rated voltage** and under **normal operation**

NOTE 1 **Normal operation** includes the change of voltage within the **toy** resulting from the operation of a switch, the failure of a lamp or a similar occurrence.

NOTE 2 When deducing the **working voltage**, the effect of **transient voltages** is ignored.

3.3.3**rated power input**

power input assigned to the **toy** by the manufacturer

3.3.4**rated current**

current assigned to the **toy** by the manufacturer

NOTE If no current is assigned to the **toy**, the **rated current** for the purpose of this standard is the current measured when the **toy** is operated under **normal operation** at **rated voltage**.

3.3.5**normal operation**

condition under which the **toy**, connected to the recommended power supply, is played with as intended or in a foreseeable way, bearing in mind the normal behaviour of children

3.4.1**creepage distance**

shortest path between two conductive parts or between a conductive part and the accessible surface of the **toy**, measured along the surface of the insulating material

3.4.2**clearance**

shortest distance between two conductive parts or between a conductive part and the accessible surface of the **toy**, measured through air

3.5.1**detachable part**

part which can be removed or opened without the aid of a **tool**, a part which can be removed or opened by a **tool** supplied with the **toy**, or a part which can be removed or opened in accordance with the instructions for use even if a **tool** is needed for removal

 Note deleted 

3.5.2**tool**

screwdriver, coin or other object which may be used to operate a screw, clip or similar fixing means

3.5.3**accessible part**

part or surface which can be touched by means of the accessibility probes shown in EN 71-1 for the relevant age group

 3.5.4**replaceable battery**

battery that can be replaced without breaking the **toy** 

3.6.1**thermostat**

temperature-sensing device, the operating temperature of which may be either fixed or adjustable and which during **normal operation** keeps the temperature of a **toy** or a part of it between certain limits by automatically opening and closing a circuit