

# **SLOVENSKI STANDARD**

## **SIST EN 61558-1:2006**

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**Nadomešča:**

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**SIST EN 61558-1:1999/A1:1999**

**SIST EN 61558-1:1999/A11:2003**

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**Varnost močnostnih transformatorjev, napajalnikov, reaktorjev in podobnih izdelkov - 1. del: Splošne zahteve in preskusi (IEC 61558-1:2005) (vsebuje popravek AC:2006)**

Safety of power transformers, power supplies, reactors and similar products -- Part 1: General requirements and tests

Sicherheit von Transformatoren, Netzgeräten, Drosseln und dergleichen -- Teil 1: Allgemeine Anforderungen und Prüfungen

Sécurité des transformateurs, alimentations, bobines d'inductance et produits analogues -- Partie 1: Exigences générales et essais

**Ta slovenski standard je istoveten z: EN 61558-1:2005**

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**ICS:**

29.180

Transformatorji. Dušilke

Transformers. Reactors

**SIST EN 61558-1:2006**

**en**

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EUROPEAN STANDARD  
NORME EUROPÉENNE  
EUROPÄISCHE NORM

**EN 61558-1**

November 2005

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Supersedes EN 61558-1:1997 + A1:1998 + A11:2003  
Incorporates Corrigendum August 2006

English version

**Safety of power transformers, power supplies,  
reactors and similar products  
Part 1: General requirements and tests  
(IEC 61558-1:2005)**

Sécurité des transformateurs,  
alimentations, bobines d'inductance  
et produits analogues  
Partie 1: Exigences générales et essais  
(CEI 61558-1:2005)

Sicherheit von Transformatoren,  
Netzgeräten, Drosseln und dergleichen  
Teil 1: Allgemeine Anforderungen und  
Prüfungen  
(IEC 61558-1:2005)

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# 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 96/224/FDIS, future edition 2 of IEC 61558-1, prepared by IEC TC 96, Small power transformers, reactors, power supply units and similar products, was submitted to the IEC-CENELEC parallel vote and was approved by CENELEC as EN 61558-1 on 2005-10-01.

This European Standard supersedes EN 61558-1:1997 + corrigendum April 2003 + A1:1998 + A11:2003.

The changes with respect to EN 61558-1:1997 were necessitated by the introduction of new technology and implementation of requirements from equipment committees.

The following dates were fixed:

- latest date by which the EN has to be implemented  
at national level by publication of an identical  
national standard or by endorsement (dop) 2006-07-01
- latest date by which the national standards conflicting  
with the EN have to be withdrawn (dow) –

This European Standard replaces EN 61558-1:1997 and its amendments. However, EN 61558-1:1997 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 products not covered by a part 2, EN 61558-1:1997 is not to be used after 2008-10-01.

This new edition of Part 1 is only to be used in conjunction with parts 2 based on this edition. The parts 2 contain clauses to supplement or modify the corresponding clauses of this Part 1 in order to provide the relevant requirements for each type of transformer.

However, individual countries may wish to consider its application, to the extent reasonable, to transformers not mentioned in the parts 2, and to transformers designed on new principles.

NOTE Annex U contains the optional  $t_w$  system (marking, requirements and tests).

In this standard, the following print types are used:

- requirements proper: in roman type;
- *test specifications: in italic type;*
- explanatory matter: in smaller roman type.

In the text of the standard, the words in **bold** are defined in Clause 3.

Annex ZA has been added by CENELEC.

The contents of the corrigendum of August 2006 have been included in this copy.

## Endorsement notice

The text of the International Standard IEC 61558-1:2005 was approved by CENELEC as a European Standard without any modification.

In the official version, for Bibliography, the following notes have to be added for the standards indicated:

IEC 60038	NOTE	Harmonized as HD 472 S1:1989 (modified).
IEC 60051	NOTE	Harmonized in EN 60051 series (not modified).
IEC 60584-1	NOTE	Harmonized as EN 60584-1:1995 (not modified).
IEC 60738-1	NOTE	Harmonized as EN 60738-1:1999 (not modified).
IEC 60998-1	NOTE	Harmonized as EN 60998-1:2004 (modified).
IEC 61000-3-2	NOTE	Harmonized as EN 61000-3-2:2000 (modified).
IEC 61000-3-3	NOTE	Harmonized as EN 61000-3-3:1995 (not modified).
IEC 62041	NOTE	Harmonized as EN 62041:2003 (not modified).
CISPR 14	NOTE	Harmonized in EN 55014 series (not modified).

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## Annex ZA (normative)

### Normative references to international publications with their corresponding European publications

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

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

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 60065 (mod)	2001	Audio, video and similar electronic apparatus - Safety requirements	EN 60065	2002
IEC 60068-2-2	1974	Basic environmental testing procedures Part 2: Tests - Tests B: Dry heat	EN 60068-2-2 <sup>1)</sup>	1993
IEC 60068-2-6	- <sup>2)</sup>	Part 2: Tests - Test Fc: Vibration (sinusoidal)	EN 60068-2-6	1995 <sup>3)</sup>
IEC 60068-2-32	- <sup>2)</sup>	Part 2: Tests - Test Ed: Free fall (Procedure 1)	EN 60068-2-32	1993 <sup>3)</sup>
IEC 60068-2-75	- <sup>2)</sup>	Part 2-75: Tests - Test Eh: Hammer tests	EN 60068-2-75	1997 <sup>3)</sup>
IEC 60076-1 (mod)	- <sup>2)</sup>	Power transformers Part 1: General	EN 60076-1 + A11 + A12	1997 <sup>3)</sup> 1997 2002
IEC/TR 60083	- <sup>2)</sup>	Plugs and socket-outlets for domestic and similar general use standardized in member countries of IEC	-	-
IEC 60085	1984	Thermal evaluation and classification of electrical insulation	HD 566 S1 <sup>4)</sup>	1990
IEC 60112	2003	Method for the determination of the proof and the comparative tracking indices of solid insulating materials	EN 60112	2003
IEC 60127-3	- <sup>2)</sup>	Miniature fuses Part 3: Sub-miniature fuse-links	EN 60127-3 + corr. June	1996 <sup>3)</sup> 1996
IEC 60216	Series	Electrical insulating materials - Thermal endurance properties	EN 60216	Series

<sup>1)</sup> EN 60068-2-2:1993 includes supplement A:1976 to IEC 60068-2-2:1974.

<sup>2)</sup> Undated reference.

<sup>3)</sup> Valid edition at date of issue.

<sup>4)</sup> HD 566 S1 is superseded by EN 60085:2004, which is based on IEC 60085:2004.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 60227 <sup>5)</sup>	Series	Polyvinyl chloride insulated cables of rated voltages up to and including 450/750 V	-	-
IEC 60245 <sup>6)</sup>	Series	Rubber insulated cables - Rated voltages up to and including 450/750 V	-	-
IEC 60269 (mod)	Series	Low-voltage fuses	EN/HD 60269	series
IEC 60269-2	- <sup>2)</sup>	Part 2: Supplementary requirements for fuses for use by authorized persons (fuses mainly for industrial application)	EN 60269-2	1995 <sup>3)</sup>
IEC 60269-2-1 (mod)	- <sup>2)</sup>	Part 2-1: Supplementary requirements for fuses for use by authorized persons (fuses mainly for industrial application) Sections I to VI: Examples of types of standardized fuses	HD 60269-2-1	2005 <sup>3)</sup>
IEC 60269-3	- <sup>2)</sup>	Part 3: Supplementary requirements for fuses for use by unskilled persons (fuses mainly for household and similar applications)	EN 60269-3	1995 <sup>3)</sup>
IEC 60269-3-1 (mod)	- <sup>2)</sup>	Part 3-1: Supplementary requirements for fuses for use by unskilled persons (fuses mainly for household and similar applications) Sections I to IV: Examples of types of standardized fuses	HD 60269-3-1	2004 <sup>3)</sup>
IEC 60309	Series	Plugs, socket-outlets and couplers for industrial purposes	EN 60309	Series
IEC 60317	Series	Specifications for particular types of winding wires	EN 60317	Series
IEC 60320	Series	Appliance couplers for household and similar general purposes	EN 60320	Series
IEC 60320-2-3	- <sup>2)</sup>	Part 2-3: Appliance coupler with a degree of protection higher than IPX0	EN 60320-2-3	1998 <sup>3)</sup>
IEC 60384-14	- <sup>2)</sup>	Fixed capacitors for use in electronic equipment Part 14: Sectional specification - Fixed capacitors for electromagnetic interference suppression and connection to the supply mains	EN 60384-14	2005 <sup>3)</sup>
IEC 60417	data-base	Graphical symbols for use on equipment	-	-

<sup>5)</sup> The HD 21 series, which is related to, but not directly equivalent with the IEC 60227 series, applies instead.

<sup>6)</sup> The HD 22 series, which is related to, but not directly equivalent with the IEC 60245 series, applies instead.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 60449	1973	Voltage bands for electrical installations of buildings	HD 193 S2 <sup>7)</sup>	1982
IEC 60454	Series	Specifications for pressure-sensitive adhesive tapes for electrical purposes	EN 60454	Series
IEC 60529	1989	Degrees of protection provided by enclosures (IP Code)	EN 60529 + corr. May	1991 1993
IEC 60664-1	1992	Insulation coordination for equipment within low-voltage systems Part 1: Principles, requirements and tests	EN 60664-1 <sup>8)</sup>	2003
IEC 60664-3	2003	Part 3: Use of coating, potting or moulding for protection against pollution	EN 60664-3	2003
IEC 60691	2002	Thermal-links - Requirements and application guide	EN 60691	2003
IEC 60695-2-10	- <sup>2)</sup>	Fire hazard testing Part 2-10: Glowing/hot-wire based test methods - Glow-wire apparatus and common test procedure	EN 60695-2-10	2001 <sup>3)</sup>
IEC 60695-2-11	2000	Part 2-11: Glowing/hot-wire based test methods - Glow-wire flammability test method for end-products	EN 60695-2-11	2001
IEC 60695-10-2	- <sup>2)</sup>	Part 10-2: Abnormal heat - Ball pressure test	EN 60695-10-2	2003 <sup>3)</sup>
IEC 60730 (mod)	Series	Automatic electrical controls for household and similar use	EN 60730	Series
IEC 60730-1 (mod)	1999	Automatic electrical controls for household and similar use Part 1: General requirements	EN 60730-1 + A12 + A13 + A14	2000 2003 2004 2005
IEC 60851-3	1996	Winding wires - Test methods Part 3: Mechanical properties	EN 60851-3	1996
IEC 60851-5	1996	Part 5: Electrical properties	EN 60851-5	1996
IEC 60851-6	1996	Part 6: Thermal properties	EN 60851-6	1996
IEC 60884-1	2002	Plugs and socket-outlets for household and similar purposes Part 1: General requirements	-	-
IEC 60884-2-4	- <sup>2)</sup>	Part 2-4: Particular requirements for plugs and socket-outlets for SELV	-	-

<sup>7)</sup> HD 193 S2 includes A1:1979 to IEC 60449:1973.

<sup>8)</sup> EN 60664-1:2003 includes A1:2000 + A2:2002 to IEC 60664-1:1992.



<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 60898 (mod)	Series	Electrical accessories - Circuit-breakers for overcurrent protection for household and similar installations	EN 60898	Series
IEC 60906-1	- <sup>2)</sup>	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 60906-3	- <sup>2)</sup>	Part 3: SELV plugs and socket-outlets, 16 A 6V, 12 V, 24 V, 48 V, a.c. and d.c.	-	-
IEC 60947-7-1	- <sup>2)</sup>	Low-voltage switchgear and controlgear Part 7-1: Ancillary equipment - Terminal blocks for copper conductors	EN 60947-7-1	2002 <sup>3)</sup>
IEC 60990 <sup>9)</sup>	1990	Methods of measurement of touch-current and protective conductor current	-	-
IEC 60998-2-1 (mod)	- <sup>2)</sup>	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	2004 <sup>3)</sup>
IEC 60998-2-2 (mod)	- <sup>2)</sup>	Part 2-2: Particular requirements for connecting devices as separate entities with screwless-type clamping units	EN 60998-2-2	2004 <sup>3)</sup>
IEC 60999-1	- <sup>2)</sup>	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 <sup>2</sup> up to 35 mm <sup>2</sup> (included)	EN 60999-1	2000 <sup>3)</sup>
IEC 61032	1997	Protection of persons and equipment by enclosures - Probes for verification	EN 61032	1998
IEC 61058-1 (mod)	2000	Switches for appliances Part 1: General requirements	EN 61058-1 <sup>10)</sup>	2002
IEC 61140	- <sup>2)</sup>	Protection against electric shock - Common aspects for installation and equipment	EN 61140	2002 <sup>3)</sup>
ISO 4046-4	2002	Paper, board, pulps and related terms - Vocabulary Part 4: Paper and board grades and converted products	-	-
ISO 8820	Series	Road vehicles – Fuse links	-	-

<sup>9)</sup> IEC 60990:1990 is superseded by IEC 60990:1999, which is harmonized as EN 60990:1999.

<sup>10)</sup> EN 61058-1:2002 includes A1:2001 to IEC 61058-1:2000.

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# INTERNATIONAL STANDARD

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## INTERNATIONAL ELECTROTECHNICAL COMMISSION

**SAFETY OF POWER TRANSFORMERS, POWER SUPPLIES,  
REACTORS AND SIMILAR PRODUCTS –****Part 1: General requirements and tests**

## 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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It has the status of a group safety publication in accordance with IEC Guide 104.

This second edition of IEC 61558-1 cancels and replaces the first edition (1997), amendment 1 (1998) and IS 01. This new edition represents a complete revision of the previous edition. The changes were necessitated by the introduction of new technology and implementation of requirements from equipment committees.