
**Varnost transformatorjev, dušilk, napajalnikov in njihovih kombinacij - 2-10. del:
Posebne zahteve in preskusi za ločilne transformatorje z visoko izolacijsko
stopnjo in ločilne transformatorje z izhodnimi napetostmi nad 1000 V (IEC 61558-2-
10:2014)**

Safety of transformers, reactors, power supply units and combinations thereof - Part 2-
10: Particular requirements and tests for separating transformers with high insulation
level and separating transformers with output voltages exceeding 1000 V

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SIST EN 61558-2-10:2014
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Sécurité des transformateurs, bobines d'inductance, blocs d'alimentation et des
combinaisons de ces éléments - Partie 2-10: Exigences et essais particuliers pour les
transformateurs de séparation à niveau d'isolement élevé et pour les transformateurs de
séparation à tensions secondaires supérieures à 1 000 V

Ta slovenski standard je istoveten z: EN 61558-2-10:2014

ICS:

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EUROPEAN STANDARD

EN 61558-2-10

NORME EUROPÉENNE

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English Version

Safety of transformers, reactors, power supply units and combinations thereof - Part 2-10: Particular requirements and tests for separating transformers with high insulation level and separating transformers with output voltages exceeding 1 000 V (IEC 61558-2-10:2014)

Sécurité des transformateurs, bobines d'inductance, blocs d'alimentation et des combinaisons de ces éléments -
Partie 2-10: Règles particulières et essais pour les transformateurs d'isolement à enroulements séparés à niveau d'isolement élevé et pour les transformateurs d'isolement à enroulements séparés à tensions secondaires supérieures à 1 000 V
(CEI 61558-2-10:2014)

Sicherheit von Transformatoren, Netzgeräten, Drosseln und dergleichen - Teil 2-10: Besondere Anforderungen und Prüfungen an Netztransformatoren mit hohem Isolationspegel und Netztransformatoren mit Ausgangsspannungen über 1 000 V
(IEC 61558-2-10:2014)

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Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN-CENELEC Management Centre or to any CENELEC member.
<https://standards.iteh.ai/catalog/standards/sist/5729ad55-4a76-47d8-8d15-39a65aac6b7a/sist-en-61558-2-10-2014>

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 CEN-CENELEC Management Centre has the same status as the official versions.

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

CEN-CENELEC Management Centre: Avenue Marnix 17, B-1000 Brussels

Foreword

The text of document 96/407/FDIS, future IEC 61558-2-10, prepared by IEC/TC 96, "Transformers, reactors, power supply units and combinations thereof" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN 61558-2-10:2014.

The following dates are fixed:

- latest date by which the document has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 2015-02-15
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2017-05-15

This Part 2-10 is intended to be used in conjunction with the latest edition of EN 61558-1 and its amendments.

This Part 2-10 supplements or modifies the corresponding clauses in EN 61558-1, so as to convert that publication into the IEC standard: Particular requirements and tests for separating transformers with high insulation level and separating transformers with output voltages exceeding 1 000 V.

When a particular subclause of Part 1 is not mentioned in this part, that subclause applies as far as is reasonable. Where this part states "addition", "modification" or "replacement", the relevant text of Part 1 is to be adopted accordingly.

In this part, the following print types are used:

- requirements proper: in roman type; [SIST EN 61558-2-10:2014](https://standards.iteh.ai/catalog/standards/sist/3729ad33-4a76-47d8-8df5-39a65aac6b7a/sist-en-61558-2-10-2014)
- test specifications: in italic type;
- explanatory matters: in smaller roman type.

In the text of this part the words in bold are defined in Clause 3.

Subclauses, notes, figures and tables additional to those in Part 1 are numbered starting from 101; supplementary annexes are entitled AA, BB, etc.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CENELEC [and/or CEN] shall not be held responsible for identifying any or all such patent rights.

Endorsement notice

The text of the International Standard IEC 61558-2-10:2014 was approved by CENELEC as a European Standard without any modification.

In the Bibliography of EN 61558-1:2005, the following note has to be **added** for the standard indicated:
Addition:

IEC 60076-11	NOTE	Harmonised as EN 60076-11 (not modified).
IEC 61050	NOTE	Harmonised as EN 61050 (modified).
IEC 61347-2-10:2000	NOTE	Harmonised as EN 61347-2-10:2001 (not modified).

Annex ZA (normative)

Normative references to international publications with their corresponding European publications

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

NOTE 1 When an International Publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

NOTE 2 Up-to-date information on the latest versions of the European Standards listed in this annex is available here: www.cenelec.eu

Annex ZA of EN 61558-1:2005 applies, except as follows:

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 61558-1	2005	Safety of power transformers, power supplies, reactors and similar products -- Part 1: General requirements and tests	EN 61558-1	2005
			+EN 61558-1:2005/corrigendum Aug. 2006	2006
IEC 61558-2-16	-	Safety of transformers, reactors, power supply units and similar products for voltages up to 1 100 V -- Part 2-16: Particular requirements and tests for switch mode power supply units and transformers for switch mode power supply units	EN 61558-2-16	-

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IEC 61558-2-10

Edition 1.0 2014-04

INTERNATIONAL STANDARD

NORME INTERNATIONALE

**Safety of transformers, reactors, power supply units and combinations thereof –
Part 2-10: Particular requirements and tests for separating transformers with
high insulation level and separating transformers with output voltages
exceeding 1 000 V**

[SIST EN 61558-2-10:2014](https://standards.iteh.ai/catalog/standards/sist/3729ad33-4a76-47d8-8df5-30655a000000/sist-en-61558-2-10-2014)

[https://standards.iteh.ai/catalog/standards/sist/3729ad33-4a76-47d8-8df5-](https://standards.iteh.ai/catalog/standards/sist/3729ad33-4a76-47d8-8df5-30655a000000/sist-en-61558-2-10-2014)

**Sécurité des transformateurs, bobines d'inductance, blocs d'alimentation et des
combinaisons de ces éléments –**

**Partie 2-10: Règles particulières et essais pour les transformateurs d'isolement
à enroulements séparés à niveau d'isolement élevé et pour les transformateurs
d'isolement à enroulements séparés à tensions secondaires supérieures
à 1 000 V**

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CONTENTS

FOREWORD.....	3
1 Scope.....	5
2 Normative references.....	6
3 Terms and definitions	6
4 General requirements	7
5 General notes on tests.....	7
6 Ratings.....	7
7 Classification	8
8 Marking and other information.....	8
9 Protection against electric shock.....	10
10 Change of input voltage setting	10
11 Output voltage and output current under load	10
12 No-load output voltage.....	10
13 Short-circuit voltage.....	11
14 Heating.....	11
15 Short-circuit and overload protection.....	11
16 Mechanical strength.....	11
17 Protection against harmful ingress of dust, solid objects and moisture.....	11
18 Insulation resistance, dielectric strength and leakage current.....	11
19 Construction.....	12
20 Components.....	13
21 Internal wiring.....	13
22 Supply connection and other external flexible cable or cords	13
23 Terminals for external conductors	13
24 Provisions for protective earthing	13
25 Screws and connections	13
26 Creepage distances, clearances and distances through insulation	13
27 Resistance to heat, fire and tracking	15
28 Resistance to rusting	15
Annexes.....	15
Table 101 – Output voltage difference	11
Table 102 – Table of dielectric strength test voltages.....	12
Table 103 – Clearances distances for homogenous fields and inhomogeneous fields.....	14
Table 104 – Creepage distances for material group III a, II and I (CTI > 175) for basic or supplementary insulation.....	15

INTERNATIONAL ELECTROTECHNICAL COMMISSION

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**SAFETY OF TRANSFORMERS, REACTORS, POWER
SUPPLY UNITS AND COMBINATIONS THEREOF –**
**Part 2-10: Particular requirements and tests for separating
transformers with high insulation level and separating
transformers with output voltages exceeding 1 000 V**

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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International Standard IEC 61558-2-10 has been prepared by IEC technical committee 96: Transformers, reactors, power supply units, and combinations thereof.

This first edition cancels and replaces Chapter II Section Three of IEC 60989 published in 1991.

It constitutes a technical revision. The main changes consist of

- a) updating this part in accordance with IEC 61558-1:2005, and
- b) adding **power supply units** to the scope.

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

FDIS	Report on voting
96/407/FDIS	96/408/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 2-10 is intended to be used in conjunction with the latest edition of IEC 61558-1 and its amendments. It is based on the second edition (2005) of that standard and its Amendment 1 (2009).

This Part 2-10 supplements or modifies the corresponding clauses in IEC 61558-1, so as to convert that publication into the IEC standard: *Particular requirements and tests for separating transformers with high insulation level and separating transformers with output voltages exceeding 1 000 V*.

A list of all parts of the IEC 61558 series, under the general title: *Safety of transformers, reactors, power supply units and combinations thereof*, can be found on the IEC website.

Future standards in this series will carry the new general title as cited above. Titles of existing standards in this series will be updated at the time of the next edition.

When a particular subclause of Part 1 is not mentioned in this part, that subclause applies as far as is reasonable. Where this part states "addition", "modification" or "replacement", the relevant text of Part 1 is to be adopted accordingly.

In this part, the following print types are used:

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

In the text of this part the words in **bold** are defined in Clause 3.

Subclauses, notes, figures and tables additional to those in Part 1 are numbered starting from 101; supplementary annexes are entitled AA, BB, etc.

The committee has decided that the contents of this publication will remain unchanged until the stability 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.

NOTE 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 from the date of publication.

The transitional period is not longer than 3 years after the publication of this standard.

SAFETY OF TRANSFORMERS, REACTORS, POWER SUPPLY UNITS AND COMBINATIONS THEREOF –

Part 2-10: Particular requirements and tests for separating transformers with high insulation level and separating transformers with output voltages exceeding 1 000 V

1 Scope

Replacement:

This part of IEC 61558 deals with the safety of **separating transformers** with high **insulation level** and **separating transformers** with **output voltages** exceeding 1 000 V. **Transformers** incorporating **electronic circuits** are also covered by this standard.

NOTE 1 Safety includes electrical, thermal and mechanical aspects.

Unless otherwise specified, from here onward, the term **transformer** covers **separating transformers with high insulation level** and **separating transformers** with **output voltages** exceeding 1 000 V a.c. or 1 500 V d.c.

This Part 2-10 is applicable to **stationary or portable**, single-phase or polyphase, air-cooled (natural or forced) **independent or associated dry-type transformers**. The windings may be encapsulated or non-encapsulated.

This standard is applicable to **transformers and power supply** (linear) with **internal operational frequencies** not exceeding 500 Hz.

This standard used in combination with Part 2-16 for **switch mode power supply units (SMPS)** is also applicable to power supplies with **internal operational frequencies** higher than 500 Hz. Where the two requirements are in conflict the most severe take precedence.

The **rated supply voltage** does not exceed 1 000 V a.c., and the **rated supply frequency** and the **internal operating frequency** do not exceed 500 Hz.

The **rated output** does not exceed:

- 25 kVA for single-phase **transformers**;
- 40 kVA for polyphase **transformers**.

This Part 2-10 is applicable to **transformers** without limitation of the **rated output** subject to an agreement between the purchaser and the manufacturer.

Where applicable the **no-load output voltage** or the **rated output voltage**:

- does not exceed 1 000 V a.c. or 1 500 V d.c. for **separating transformers with high insulation level**;
- does exceed 1 000 V a. c or 1 500 V d.c. and does not exceed 15 000 V a.c. or 15 000 V d.c. for **separating transformer** with **output voltage** exceed 1 000 V.

This Part 2-10 is not applicable to:

- **transformers** covered by IEC 60076-11;