

Jõutrafode, elektrivarustusseadmete ja muude taoliste seadmete ohutus tööpingetel kuni 1100 V. Osa 2-4: Erinõuded ja katsetused üldkasutatavatele eraldustrafodele ja elektrivarustusseadmetele mis sisaldavad eraldustrafosid

Safety of transformers, reactors, power supply units and similar products for voltages up to 1100 V -- Part 2-4: Particular requirements and tests for isolating transformers and power supply units incorporating isolating transformers

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

Käesolev Eesti standard EVS-EN 61558-2-4:2009 sisaldab Euroopa standardi EN 61558-2-4:2009 ingliskeelset teksti.

Standard on kinnitatud Eesti Standardikeskuse 31.07.2009 käskkirjaga ja jõustub sellekohase teate avaldamisel EVS Teatajas.

Euroopa standardimisorganisatsioonide poolt rahvuslikele liikmetele Euroopa standardi teksti kättesaadavaks tegemise kuupäev on 15.05.2009.

Standard on kättesaadav Eesti standardiorganisatsioonist.

This Estonian standard EVS-EN 61558-2-4:2009 consists of the English text of the European standard EN 61558-2-4:2009.

This standard is ratified with the order of Estonian Centre for Standardisation dated 31.07.2009 and is endorsed with the notification published in the official bulletin of the Estonian national standardisation organisation.

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ICS 29.180

Võtmesõnad: isolating transformers, no-load output voltage, rated frequency, rated output, rated supply voltage, requirements, safety, transformers

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**Safety of transformers, reactors, power supply units
and similar products for supply voltages up to 1 100 V -
Part 2-4: Particular requirements and tests for isolating transformers
and power supply units incorporating isolating transformers
(IEC 61558-2-4:2009)**

Sécurité des transformateurs, bobines
d'inductance, blocs d'alimentation
et produits analogues pour des tensions
d'alimentation jusqu'à 1 100 V -
Partie 2-4: Règles particulières et essais
pour les transformateurs de séparation
des circuits et les blocs d'alimentation
incorporant des transformateurs
de séparation des circuits
(CEI 61558-2-4:2009)

Sicherheit von Transformatoren, Drosseln,
Netzgeräten und dergleichen
für Versorgungsspannungen bis 1 100 V -
Teil 2-4: Besondere Anforderungen
und Prüfungen an Trenntransformatoren
und Netzgeräte die Trenntransformatoren
enthalten
(IEC 61558-2-4:2009)

This European Standard was approved by CENELEC on 2009-03-01. 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, Bulgaria, Cyprus, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and the United Kingdom.

CENELEC

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

Central Secretariat: avenue Marnix 17, B - 1000 Brussels

Foreword

The text of document 96/316/FDIS, future edition 2 of IEC 61558-2-4, prepared by IEC TC 96, Transformers, reactors, power supply units and similar products for low voltage up to 1 100 V, was submitted to the IEC-CENELEC parallel vote and was approved by CENELEC as EN 61558-2-4 on 2009-03-01.

This European Standard supersedes EN 61558-2-4:1997.

The main changes consist of updating this part in accordance with EN 61558-1:2005, and increasing the supply voltages up to 1 100 V to be in line with the standards of TC 14.

This part is intended to be used in conjunction with the latest edition of EN 61558-1 and its amendments. It is based on EN 61558-1:2005.

This part supplements or modifies the corresponding clauses in EN 61558-1, so as to convert that publication into the European Standard: *Particular requirements and tests for isolating transformers and power supply units incorporating isolating transformers*.

Where 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 adapted accordingly.

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) | 2009-12-01 |
| – latest date by which the national standards conflicting with the EN have to be withdrawn | (dow) | 2012-03-01 |

In this part, 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 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.

Annex ZA has been added by CENELEC.

Endorsement notice

The text of the International Standard IEC 61558-2-4:2009 was approved by CENELEC as a European Standard without any modification.

In the official version, for Bibliography, the following note has to be added for the standard indicated:

IEC 61558-2-16	NOTE	Harmonized as EN 61558-2-16:200X (not modified).
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Annex ZA
(normative)

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

Addition to Annex ZA of EN 61558-1:

<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 + corr. August	2005 2006

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SAFETY OF TRANSFORMERS, REACTORS, POWER SUPPLY UNITS AND SIMILAR PRODUCTS FOR SUPPLY VOLTAGES UP TO 1 100 V –

Part 2-4: Particular requirements and tests for isolating transformers and power supply units incorporating isolating transformers

1 Scope

Replacement:

This part of IEC 61558 deals with the safety of **isolating transformers** for general applications and **power supply units** incorporating **isolating transformers** for general applications. **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 **isolating transformers** for general applications and **power supply units** incorporating **isolating transformers** for general applications.

NOTE 2 For **power supply units** (linear) this part is applicable. For **switch mode power supply units**, IEC 61558-2-16 is applicable together with this part.

This part 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.

The **rated supply voltage** does not exceed 1 100 V a.c., and the **rated supply frequency** and the **internal operating frequencies** do not exceed 500 Hz.

The **rated output** does not exceed:

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

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

NOTE 3 **Transformers** intended to supply distribution networks are not included in the scope.

The **no-load output voltage** or the **rated output voltage** does exceed 50 V a.c. or 120 V ripple-free d.c., and where applicable, does not exceed 500 V a.c. or 708 V ripple-free d.c.

The **no-load output voltage** and the **rated output voltage** may be up to 1 000 V a.c. or 1 415 V ripple-free d.c. for special applications.

This part is not applicable to external circuits and their components intended to be connected to the input terminals and output terminals of the **transformers**.

Transformers covered by this part are used in applications where **double or reinforced insulation** between circuits is required by the installation rules or by the end product standard.

NOTE 4 Attention is drawn to the following:

- for **transformers** intended to be used in vehicles, on board ships, and aircraft, additional requirements (from other applicable standards, national rules, etc.) may be necessary;
- measures to protect the **enclosure** and the components inside the enclosure against external influences such as fungus, vermin, termites, solar-radiation, and icing should also be considered;
- the different conditions for transportation, storage, and operation of the **transformers** should also be considered;
- additional requirements in accordance with other appropriate standards and national rules may be applicable to **transformers** intended for use in special environments.

NOTE 5 Future technological development of **transformers** may necessitate a need to increase the upper limit of the frequencies, until then this part may be used as a guidance document.

2 Normative references

This clause of Part 1 is applicable except as follows.

Addition:

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

3 Terms and definitions

This clause of Part 1 is applicable.

4 General requirements

This clause of Part 1 is applicable.

5 General notes on tests

This clause of Part 1 is applicable.

6 Ratings

This clause of Part 1 is applicable.

Addition:

6.101 The **rated output voltage** shall exceed 50 V a.c. or 120 V ripple-free d.c. but not exceed;

- 250 V a.c. for single-phase **portable transformers**;
- 400 V a.c. for polyphase **portable transformers**, and
- 500 V a.c. or 708 V ripple-free d.c. for other **transformers**. In this case, the **rated output voltage** may be up to 1 000 V a.c. or 1 415 V ripple-free d.c. to be in accordance with the national wiring rules or for a special purpose. This output voltage limitation apply even when output windings, not intended for interconnection, are connected in series.

6.102 The **rated output** shall not exceed:

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