

Trafode, reaktorite, elektritoiteplokkide ja nende kombinatsioonide ohutus. Osa 2-20: Erinõuded väikereaktoritele ning nende katsetamine

Safety of transformers, reactors, power supply units and combinations thereof - Part 2-20: Particular requirements and tests for small reactors

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

<p>Käesolev Eesti standard EVS-EN 61558-2-20:2011 sisaldab Euroopa standardi EN 61558-2-20:2011 ingliskeelset teksti.</p> <p>Standard on kinnitatud Eesti Standardikeskuse 31.03.2011 käskkirjaga ja jõustub sellekohase teate avaldamisel EVS Teatajas.</p> <p>Euroopa standardimisorganisatsioonide poolt rahvuslikele liikmetele Euroopa standardi teksti kättesaadavaks tegemise kuupäev on 25.02.2011.</p> <p>Standard on kättesaadav Eesti standardiorganisatsioonist.</p>	<p>This Estonian standard EVS-EN 61558-2-20:2011 consists of the English text of the European standard EN 61558-2-20:2011.</p> <p>This standard is ratified with the order of Estonian Centre for Standardisation dated 31.03.2011 and is endorsed with the notification published in the official bulletin of the Estonian national standardisation organisation.</p> <p>Date of Availability of the European standard text 25.02.2011.</p> <p>The standard is available from Estonian standardisation organisation.</p>
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ICS 29.180

interference suppressors, power transformers, safety requirements, short-circuit protection, small chokes, small-power transformers, specification (approval), specifications, strength of materials, testing, tracking index, tracking resistance, transformers

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English version

Safety of transformers, reactors, power supply units and combinations thereof -

**Part 2-20: Particular requirements and tests for small reactors
(IEC 61558-2-20:2010)**

Sécurité des transformateurs, bobines d'inductance, blocs d'alimentation et combinaisons de ces éléments -
Partie 2-20: Règles particulières et essais pour les petites bobines d'inductance
(CEI 61558-2-20:2010)

Sicherheit von Transformatoren, Drosseln, Netzgeräten und entsprechende Kombinationen -
Teil 2-20: Besondere Anforderungen und Prüfungen an Kleindrosseln
(IEC 61558-2-20:2010)

This European Standard was approved by CENELEC on 2011-01-02. 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, Bulgaria, Croatia, 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

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Foreword

The text of document 96/356/FDIS, future edition 2 of IEC 61558-2-20, prepared by IEC TC 96, Transformers, reactors, power supply units, and combinations thereof, was submitted to the IEC-CENELEC parallel vote and was approved by CENELEC as EN 61558-2-20 on 2011-01-02.

This European Standard supersedes EN 61558-2-20:2000.

The main changes consist of updating this part in accordance with EN 61558-1:2005.

This part has the status of a group safety publication in accordance with IEC Guide 104:1997, *The preparation of safety publications and the use of basic safety publications and group safety publications*.

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

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) 2011-10-02
- latest date by which the national standards conflicting with the EN have to be withdrawn (dow) 2014-01-02

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 small reactors*.

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.

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 61558-2-20:2010 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 60289:1988	NOTE Harmonized as EN 60289:1994 (modified).
IEC 61347-2-8:2000	NOTE Harmonized as EN 61347-2-8:2001 (not modified).
IEC 61347-2-9:2000	NOTE Harmonized as EN 61347-2-9:2001 (not modified).
IEC 61558-2-16:2009	NOTE Harmonized as EN 61558-2-16:2009 (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 When an international publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

Annex ZA of Part 1 is applicable except as follows:

Addition:

<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 COMBINATIONS THEREOF –

Part 2-20: Particular requirements and tests for small reactors

1 Scope

Replacement:

This part of IEC 61558 deals with the safety of **small reactors** for general applications.

NOTE 1 Safety includes electrical, thermal and mechanical aspects.

Unless otherwise specified, from here onward, the term **transformer** or **reactor** covers **small reactors**.

This part is applicable to **stationary** or **portable**, single-phase or polyphase, air-cooled (natural or forced) general purpose **reactors** including alternating current, premagnetised and current compensated **independent** or **associated reactors**.

The **rated supply voltage** does not exceed 1 000 V a.c. or 1 500V ripple-free d.c., the **rated supply frequency** and the **internal operational frequencies** do not exceed 1 MHz.

The **rated power** does not exceed:

- 25 kVAR a.c. (25 kW d.c.) for single-phase **reactors**,
- 50 kVAR a.c. (50 kW d.c.) for poly-phase **reactors**.

This part is applicable to **reactors** without limitations of the **rated power** subject to an agreement between the purchaser and the manufacturer.

This part is applicable to **dry-type reactors**. The windings may be encapsulated or non-encapsulated.

This part does not apply to:

- **reactors** covered by IEC 60289;
- ballast for tubular fluorescent covered by IEC 61347-2-8;
- ballast for discharge lamps (excluding tubular fluorescent lamps) covered by IEC 61347-2-9.

NOTE 2 For **reactors** filled with liquid dielectric or pulverised material such as sand, additional requirements are under consideration.

NOTE 3 Attention is drawn to the following:

- for **reactors** 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 **reactor** should also be considered;

- additional requirements in accordance with other appropriate standards and national rules may be applicable to **reactors** intended for use in special environments, such as tropical environment.

NOTE 4 Normally, **reactors** are intended to be associated with equipment for functional requirements of the equipment or requirements by the installation rules or by other appliance specifications.

NOTE 5 **Reactors** incorporating **electronic circuits** and components are also covered by this standard.

NOTE 6 The protection against electric shock may be provided (or completed) by other parts or features of the equipment, such as the **body**.

NOTE 7 **Reactors** for particular applications will in the future be covered by complementary normative annexes.

NOTE 8 Future technological development of **reactors** 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, except as follows:

Modification:

Where Part 1 is applicable, the word "**transformer**" if used, shall be replaced by "**reactor**".

Addition:

3.1.101

reactor

arrangement comprising one or more windings with an impedance depending on the frequency, working in accordance with the principle of self-induction whereby a magnetising current generates a magnetic field through a magnetically effective core or through air

NOTE **Reactors** with toroidal core are also included in this definition.

3.1.102

alternating current reactor

reactor in which the magnetising current generates an alternating magnetic field, changing its polarity depending on the frequency

3.1.103

premagnetised reactor

reactor in which the magnetising direct current generates a magnetic field of only one polarity, while a superimposed alternating current alters the direct magnetic field depending on its strength and the frequency

3.1.104

current compensated reactor

reactor with at least two windings on a common core, where the magnetising currents are in opposite directions in order to reduce the magnetic flux