SLOVENSKI STANDARD

SIST EN 60076-11:2005

februar 2005

Močnostni transformatorji – 11. del: Suhi transformatorji (IEC 60076-11:2004)

Power transformers - Part 11: Dry-type transformers (IEC 60076-11:2004)

ICS 29.180

Referenčna številka
SIST EN 60076-11:2005(en)

EUROPEAN STANDARD **EN 60076-11**

NORME EUROPÉENNE

EUROPÄISCHE NORM July 2004

ICS 29.180 Supersedes EN 60726:2003

English version

Power transformers
Part 11: Dry-type transformers
(IEC 60076-11:2004)

Transformateurs de puissance
Partie 11: Transformateurs de type sec
(CEI 60076-11:2004)

Leistungstransformatoren
Teil 11: Trockentransformatoren
(IEC 60076-11:2004)

This European Standard was approved by CENELEC on 2004-07-01. 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, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.

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

Ref. No. EN 60076-11:2004 E

Foreword

The text of document 14/476/FDIS, future edition 1 of IEC 60076-11, prepared by IEC TC 14, Power transformers, was submitted to the IEC-CENELEC parallel vote and was approved by CENELEC as EN 60076-11 on 2004-07-01.

This European Standard supersedes EN 60726:2003.

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)	2005-04-01
– latest date by which the national standards conflicting with the EN have to be withdrawn	(dow)	2007-07-01

Annex ZA has been added by CENELEC.

Endorsement notice

The text of the International Standard IEC 60076-11:2004 was approved by CENELEC as a European Standard without any modification.

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.

Publication	Year	Title	EN/HD	Year
IEC 60050	Series	International Electrotechnical Vocabulary	-	-
IEC 60071	Series	Insulation co-ordination	EN 60071	Series
IEC 60076-1 (mod) A1	1993 1999	Power transformers Part 1: General	EN 60076-1 A11 A1 A12	1997 1997 2000 2002
IEC 60076-2 (mod)	- [1]	Part 2: Temperature rise	EN 60076-2	1997 [2]
IEC 60076-3	- [1]	Part 3: Insulation levels, dielectric tests and external clearances in air	EN 60076-3	2001 [2]
IEC 60076-5	- [1]	Part 5: Ability to withstand short circuit	EN 60076-5	2000 [2]
IEC 60076-10	- [1]	Part 10: Determination of sound levels	EN 60076-10	2001 [2]
IEC 60085	- [1]	Electrical insulation - Thermal classification	-	-
IEC 60270	- [1]	High-voltage test techniques - Partial discharge measurements	EN 60270	2001 [2]
IEC 60332-3-10	- [1]	Test on electric cables under fire conditions Part 3-10: Test for vertical flame spread of vertically-mounted bunched wires or cables - Apparatus	-	-
IEC 60529	- [1]	Degrees of protection provided by enclosures (IP Code)	EN 60529 + corr. May	1991 [2] 1993
IEC 60905	1987	Loading guide for dry-type power transformers	-	-
IEC 61330	- [1]	High-voltage/low-voltage prefabricated substations	EN 61330	1996 [2]

[1] Undated reference.

[2] Valid edition at date of issue.

NORME INTERNATIONALE

INTERNATIONAL STANDARD

CEI
IEC
60076-11

Première édition
First edition
2004-05

Transformateurs de puissance –

Partie 11:
Transformateurs de type sec

Power transformers –

Part 11:
Dry-type transformers

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Международная Электротехническая Комиссия

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For price, see current catalogue

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

POWER TRANSFORMERS –

Part 11: Dry-type transformers

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 60076-11 has been prepared by IEC technical committee 14: Power transformers.

This standard cancels and replaces IEC 60726 (1982) and its amendment 1 (1986).

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

FDIS	Report on voting
14/476/FDIS	14/484/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.

IEC 60076 consists of the following parts, under the general title *Power transformers:*

Part 1:	General
Part 2:	Temperature rise
Part 3:	Insulation levels, dielectric tests and external clearances in air
Part 4:	Guide to lightning impulse and switching impulse testing – Power transformers and reactors
Part 5:	Ability to withstand short-circuit
Part 6:	Reactors [1]
Part 7:	Loading guide for oil-immersed power transformers [1]
Part 8:	Application guide
Part 10:	Determination of sound levels
Part 10-1:	Determination of transformer and reactor sound levels – User guide [1]
Part 11:	Dry-type transformers
Part 12:	Loading guide for dry-type power transformers [1]
Part 13:	Self protected liquid filled transformers [1]
Part 14:	Guide for the design and application of liquid-immersed power transformers using high-temperature insulation materials [1]
Part 15:	Gas-filled-type power transformers [1]

The committee has decided that the contents of this publication will remain unchanged until 2006. At this date, the publication will be

- reconfirmed;
- withdrawn;
- replaced by a revised edition, or
- amended.

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[1] Under consideration.

POWER TRANSFORMERS –

Part 11: Dry-type transformers

1 Scope

This part of IEC 60076 applies to dry-type power transformers (including auto-transformers) having values of highest voltage for equipment up to and including 36 kV and at least one winding operating at greater than 1,1 kV. The standard applies to all construction technologies.

This standard does not apply to:

– gas-filled dry type transformers where the gas is not air;
– single-phase transformers rated at less than 5 kVA;
– polyphase transformers rated at less than 15 kVA;
– instrument transformers (see IEC 60044 and IEC 60186);
– starting transformers;
– testing transformers;
– traction transformers mounted on rolling stock;
– flameproof and mining transformers;
– welding transformers;
– voltage regulating transformers;
– small power transformers in which safety is a special consideration.

Where IEC standards do not exist for the transformers mentioned above or for other special transformers, this standard may be applicable as a whole or in parts.

2 Normative references

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.

IEC 60050 (all parts), *International electrotechnical vocabulary (IEV)*

IEC 60071 (all parts), *Insulation co-ordination*

IEC 60076-1:1993, *Power transformers – Part 1: General*
Amendment 1 (1999)

IEC 60076-2, *Power transformers – Part 2: Temperature rise*

IEC 60076-3, *Power transformers – Part 3: Insulation levels, dielectric tests and external clearances in air*