

Svenska Elektriska Kommissionen, SEK

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## Krafttransformatorer – Del 11: Torrisolerade krafttransformatorer

*Power transformers –  
Part 11: Dry-type transformers*

Som svensk standard gäller europastandarden EN 60076-11:2004. Den svenska standarden innehåller den officiella engelska språkversionen av EN 60076-11:2004.

### Nationellt förord

Europastandarden EN 60076-11:2004

består av:

- **europastandardens ikraftsättningsdokument**, utarbetat inom CENELEC
- **IEC 60076-11, First edition, 2004 - Power transformers - Part 11: Dry-type transformers**  
utarbetad inom International Electrotechnical Commission, IEC.

Tidigare fastställd svensk standard SS-EN 60726, utgåva 1, 2003, gäller ej fr o m 2007-07-01.

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Det finns många fördelar med att ha gemensamma tekniska regler för bl a säkerhet, prestanda, dokumentation, utförande och skötsel av elprodukter, elanläggningar och metoder. Genom att utforma sådana standarder blir säkerhetskraven tydliga och utvecklingskostnaderna rimliga samtidigt som marknadens acceptans för produkten eller tjänsten ökar.

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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**

## 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.

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## Endorsement notice

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

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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 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)	- <sup>1)</sup>	Part 2: Temperature rise	EN 60076-2	1997 <sup>2)</sup>
IEC 60076-3	- <sup>1)</sup>	Part 3: Insulation levels, dielectric tests and external clearances in air	EN 60076-3	2001 <sup>2)</sup>
IEC 60076-5	- <sup>1)</sup>	Part 5: Ability to withstand short circuit	EN 60076-5	2000 <sup>2)</sup>
IEC 60076-10	- <sup>1)</sup>	Part 10: Determination of sound levels	EN 60076-10	2001 <sup>2)</sup>
IEC 60085	- <sup>1)</sup>	Electrical insulation - Thermal classification	-	-
IEC 60270	- <sup>1)</sup>	High-voltage test techniques - Partial discharge measurements	EN 60270	2001 <sup>2)</sup>
IEC 60332-3-10	- <sup>1)</sup>	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	- <sup>1)</sup>	Degrees of protection provided by enclosures (IP Code)	EN 60529 + corr. May	1991 <sup>2)</sup> 1993
IEC 60905	1987	Loading guide for dry-type power transformers	-	-
IEC 61330	- <sup>1)</sup>	High-voltage/low-voltage prefabricated substations	EN 61330	1996 <sup>2)</sup>

<sup>1)</sup> Undated reference.

<sup>2)</sup> Valid edition at date of issue.



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## 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*

IEC 60076-5, *Power transformers – Part 5: Ability to withstand short-circuit*

IEC 60076-10, *Power transformers – Part 10: Determination of sound levels*

IEC 60085, *Thermal evaluation and classification of electrical insulation*

IEC 60270, *High-voltage test techniques – Partial discharge measurements*

IEC 60332-3-10, *Tests on electric cables under fire conditions – Part 3-10: Test for vertical flame spread of vertically-mounted bunched wires or cables – Apparatus*

IEC 60529, *Degrees of protection provided by enclosures (IP Code)*

IEC 60905:1987, *Loading guide for dry-type power transformers*

IEC 61330, *High-voltage/low voltage prefabricated substations*

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