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Power transformers - Part 22-6: Power transformer and reactor fittings - Electric fans for transformers

## EESTI STANDARDI EESSÕNA

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English Version

Power transformers - Part 22-6: Power transformer and reactor fittings - Electric fans for transformers  
(IEC 60076-22-6:2021)

Transformateurs de puissance - Partie 22-6: Accessoires pour transformateurs de puissance et bobines d'inductance - Ventilateurs électriques pour transformateurs  
(IEC 60076-22-6:2021)

Leistungstransformatoren - Teil 22-6: Kühleinrichtungen für Leistungstransformatoren und Drosselspulen - Ventilatoren  
(IEC 60076-22-6:2021)

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## European foreword

The text of document 14/1022/CDV, future edition 1 of IEC 60076-22-6, prepared by IEC/TC 14 "Power transformers" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN IEC 60076-22-6:2021.

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- latest date by which the document has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 2021-11-22
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IEC 60076-6 NOTE Harmonized as EN 60076-6

# INTERNATIONAL STANDARD

## NORME INTERNATIONALE

**Power transformers –**

**Part 22-6: Power transformer and reactor fittings – Electric fans for transformers**

**Transformateurs de puissance –**

**Partie 22-6: Accessoires pour transformateurs de puissance et bobines  
d'inductance – Ventilateurs électriques pour transformateurs**



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# INTERNATIONAL STANDARD

# NORME INTERNATIONALE

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**Power transformers –**

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## INTERNATIONAL ELECTROTECHNICAL COMMISSION

## POWER TRANSFORMERS –

**Part 22-6: Power transformer and reactor fittings –  
Electric fans for transformers**

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Draft	Report on voting
14/1022/CDV	14/1041A/RVC

Full information on the voting for its approval can be found in the report on voting indicated in the above table.

The language used for the development of this International Standard is English.

This document was drafted in accordance with ISO/IEC Directives, Part 2, and developed in accordance with ISO/IEC Directives, Part 1 and ISO/IEC Directives, IEC Supplement, available at [www.iec.ch/members\\_experts/refdocs](http://www.iec.ch/members_experts/refdocs). The main document types developed by IEC are described in greater detail at [www.iec.ch/standardsdev/publications](http://www.iec.ch/standardsdev/publications).

A list of all parts in the IEC 60076 series, published under the general title *Power transformers*, can be found on the IEC website.

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## POWER TRANSFORMERS –

### Part 22-6: Power transformer and reactor fittings – Electric fans for transformers

#### 1 Scope

This part of IEC 60076 covers the electric fans used in the cooling circuits of power transformers and reactors. It applies to electric fans mounted on liquid immersed power transformers according to IEC 60076-1 and reactors according to IEC 60076-6 with and without conservator for indoor or outdoor installation. It outlines the service conditions and the mechanical and electrical requirements that are common to all the equipment.

The electric fans concerned by this document are of the axially operating type and are for use on liquid to air coolers and for blowing out radiators.

This document also outlines the operation requirements specific to each equipment as well as the preferred dimensions relevant for interchangeability and uniform fan assembly and the type and routine tests to be performed.

#### 2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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 60034-1, *Rotating electrical machines – Part 1: Rating and performance*

IEC 60076-1:2011, *Power transformers – Part 1: General*

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

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

ISO 281, *Rolling bearings – Dynamic load ratings and rating life*

ISO 5801:2017, *Fans – Performance testing using standardized airways*

ISO 9227, *Corrosion tests in artificial atmospheres – Salt spray tests*

ISO 12944 (all parts), *Paints and varnishes – Corrosion protection of steel structures by protective paint systems*

ISO 13347-1, *Industrial fans – Determination of fan sound power levels under standardized laboratory conditions – Part 1: General overview*

ISO 13347-3, *Industrial fans – Determination of fan sound power levels under standardized laboratory conditions – Part 3: Enveloping surface methods*

ISO 13348, *Industrial fans – Tolerances, methods of conversion and technical data presentation*

ISO 13857:2019, *Safety of machinery – Safety distances to prevent hazard zones being reached by upper and lower limbs*

ISO 14694, *Industrial fans – Specifications for balance quality and vibration levels*

### 3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- IEC Electropedia: available at <http://www.electropedia.org/>
- ISO Online browsing platform: available at <http://www.iso.org/obp>

#### 3.1

##### **electric fan**

<for transformers> fan specifically designed to blow air through the cooling system of a transformer

Note 1 to entry: See IEC 60050-811:2017, 811-22-01 for definition of "fan".

### 4 Service conditions

#### 4.1 General

The service conditions set out in IEC 60076-1:2011, 4.2 represent the normal scope of operation of the equipment specified in this document. For any unusual service conditions which require special consideration in the design of the equipment see IEC 60076-1:2011, 5.5. Operation under such unusual service conditions shall be subject to agreement between the purchaser and supplier, as they require special consideration in the design of the equipment.

#### 4.2 Degree of protection of electrical components (IP)

The degree of protection of the connection box or terminal box and of the motor drive shall be at least IP 54 according to IEC 60529, unless otherwise specified by the purchaser.

#### 4.3 Corrosion protection

The materials used for the construction of the equipment or the surface treatment shall be resistant to the insulating liquid and suitable to withstand the environmental conditions given in 4.1. Unless otherwise specified the dielectric liquid is mineral oil according to IEC 60296.

The corrosion protection shall be agreed between purchaser and manufacturer according to ISO 12944 (all parts) or other standards as agreed with the purchaser. The responsibility to specify the correct level of corrosion protection lies with the purchaser and is dependent on the environment where the transformer will be located and on the durability required. Where no level of corrosion protection is specified, the minimum shall be C4 medium.