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Krafttransformatorer – Del 22-4: Transformator- och reaktortillbehör – Kylare olja-vatten

*Power transformers –
Part 22-4: Power transformer and reactor fittings –
Insulating liquid to water heat exchangers*

Som svensk standard gäller europastandarden EN IEC 60076-22-4:2019. Den svenska standarden innehåller den officiella engelska språkversionen av EN IEC 60076-22-4:2019.

Nationellt förord

Europastandarden EN IEC 60076-22-4:2019

består av:

- **europastandardens ikraftsättningsdokument**, utarbetat inom CENELEC
- **IEC 60076-22-4, First edition, 2019 - Power transformers - Part 22-4: Power transformer and reactor fittings - Insulating liquid to water heat exchangers**

utarbetad inom International Electrotechnical Commission, IEC.

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English Version

Power transformers - Part 22-4: Power transformer and reactor fittings - Insulating liquid to water heat exchangers (IEC 60076-22-4:2019)

Transformateurs de puissance - Partie 22-4: Accessoires pour transformateurs de puissance et bobines d'inductance - Hydroréfrigérants (IEC 60076-22-4:2019)

Leistungstransformatoren und Drosselspulen Kühlungseinrichtung - Teil 22-4: Isolierte Flüssigkeit-Wasser-Wärmetauscher (IEC 60076-22-4:2019)

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

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

European foreword

The text of document 14/996/FDIS, future edition 1 of IEC 60076-22-4, prepared by IEC/TC 14 "Power transformers" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN IEC 60076-22-4:2019.

The following dates are fixed:

- latest date by which the document has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 2020-01-12
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2022-04-12

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Endorsement notice

The text of the International Standard IEC 60076-22-4:2019 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 60076-6	NOTE	Harmonized as EN 60076-6
ISO 3506-1	NOTE	Harmonized as EN ISO 3506-1
ISO 9001	NOTE	Harmonized as EN ISO 9001

Annex ZA

(normative)

Normative references to international publications with their corresponding European publications

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.

NOTE 1 Where an International Publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

NOTE 2 Up-to-date information on the latest versions of the European Standards listed in this annex is available here: www.cenelec.eu.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 60076-1	-	Power transformers - Part 1: General	EN 60076-1	-
IEC 60076-7	-	Power transformers - Part 7: Loading guide for oil-immersed power transformers	-	-
IEC 60296	-	Fluids for electrotechnical applications - Unused mineral insulating oils for transformers and switchgear	EN 60296	-
IEC 60529	-	Degrees of protection provided by enclosures (IP Code)	-	-
ISO 4406	-	Hydraulic fluid power - Fluids - Method for coding the level of contamination by solid particles	-	-
ISO 12944	series	Paints and varnishes - Corrosion protection of steel structures by protective paint systems	EN ISO 12944	series

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

POWER TRANSFORMERS –**Part 22-4: Power transformer and reactor fittings –
Insulating liquid to water heat exchangers**

FOREWORD

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International Standard IEC 60076-22-4 has been prepared by IEC technical committee 14: Power transformers.

The text of this International Standard is based on the following documents:

FDIS	Report on voting
14/996/FDIS	14/1004/RVD

Full information on the voting for the approval of this International Standard can be found in the report on voting indicated in the above table.

This document has been drafted in accordance with the ISO/IEC Directives, Part 2.

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

The committee has decided that the contents of this document will remain unchanged until the stability date indicated on the IEC website under "<http://webstore.iec.ch>" in the data related to the specific document. At this date, the document will be

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

INTRODUCTION

Under the part title “Power transformer and reactor fittings” this part of IEC 60076-22 covers the insulating liquid to water heat exchangers in the cooling circuits of power transformers and reactors.

Annex B gives guidance to the end user for approximation of the behaviour of the heat exchanger under different operation conditions. Annex C gives an example based on the calculation rules stipulated in Annex B.

POWER TRANSFORMERS –

Part 22-4: Power transformer and reactor fittings – Insulating liquid to water heat exchangers

1 Scope

This part of IEC 60076 applies to liquid to water heat exchangers, using forced water and forced liquid circuits, used 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 this equipment.

It also outlines the operation requirements specific to this equipment as well as the preferred dimensions relevant for interchangeability 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 60076-1, *Power transformers – Part 1: General*

IEC 60076-7, *Power transformers – Part 7: Loading guide for mineral oil-immersed power transformers*

IEC 60296, *Fluids for electrotechnical applications – Unused mineral insulating oils for transformers and switchgear*

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

ISO 4406, *Hydraulic fluid power – Fluids – Method for coding the level of contamination by solid particles*

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