



SLOVENSKI STANDARD
SIST HD 464 S1:1997

01-oktober-1997

Dry-type power transformers

Dry-type power transformers

Trockentransformatoren

Transformateurs de puissance de type sec

Ta slovenski standard je istoveten z: HD 464 S1:1988

[SIST HD 464 S1:1997](https://standards.iteh.ai/catalog/standards/sist/8e85146b-5b39-4c6d-8079-9aa1b502475c/sist-hd-464-s1-1997)

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ICS:

29.180

Transformatorji. Dušilke

Transformers. Reactors

SIST HD 464 S1:1997

en

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DRY-TYPE POWER TRANSFORMERS

Transformateurs de puissance de
 type sec

Trockentransformatoren

BODY OF THE HD

The Harmonization Document consists of:

- IEC 726 (1982) ed 1 + Amdt 1 (1986); IEC/TC 14 , not appended
- with CENELEC common modifications prepared by CLC/TC 14

This Harmonization Document was approved by CENELEC on 1988-06-28.

The English and French versions of this Harmonization Document are provided by the text of the IEC publication and the German version is the official translation of the IEC text.

ALL texts prepared by CENELEC exist in three official versions (English, French, and German).

According to the CENELEC Internal Regulations the CENELEC member National Committees are bound:

to announce the existence of this Harmonization Document at national level by or before 1989-01-01

to publish their new harmonized national standard by or before 1989-09-01

to withdraw all conflicting national standards by or before 1989-09-01.

Harmonized national standards are listed on the HD information sheet, which is available from the CENELEC National Committees or from the CENELEC Central Secretariat.

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FOREWORD1) GENERAL

This Harmonization Document was prepared by CENELEC TC 14, following the decisions taken in Milan on 6th June 1984, in Frankfurt am Main on 4th June 1985, in Zurich/Glattbrugg on 4th and 5th March 1986, in London on 22nd May 1987 and in compliance with the instructions given by 41st Technical Board on 29th February and 2nd March 1984. The complete text of IEC 726 and Amdt 1 (1986) (not appended) is endorsed as HD 464 S1 with the exception of common agreed CENELEC modifications to Clauses 2, 3, 4, 8, table IV, Clauses 19, 20, 21, Section six and Appendix B.

iTeh STANDARD PREVIEW2) NATIONAL DEVIATIONS **(standards.iteh.ai)**

Netherlands is introducing a B deviation concerning the duration of the induced overvoltage test. [SIST HD 464 S1:1997](https://standards.iteh.ai/catalog/standards/sist/8e85146b-5b39-4c6d-8079-9a1b503175c/sist-hd-464-s1-1997)

[https://standards.iteh.ai/catalog/standards/sist/8e85146b-5b39-4c6d-8079-](https://standards.iteh.ai/catalog/standards/sist/8e85146b-5b39-4c6d-8079-9a1b503175c/sist-hd-464-s1-1997)

It is listed in an informative Annex which does not form part of the Harmonization Document.

COMMON MODIFICATIONSa) Sub-Clause 2.1Modification

- The last-but-one word of the French text (approximative-ment) shall be substituted by the word "pratiquement".

Justification

The proposal is considered an editorial modification and an improvement in the French text.

Modification

- Add point "e) Environmental conditions:

Indoor installation without condensation according to ambient class O of Appendix B".
(standards.iteh.ai)

Justification

In Appendix B ambient classes have been defined; ambient class O, corresponding to no pollution, normal and controlled ambient temperature is considered the normal installation condition.

b) Clause 3Modification

- The last word of the title of the French text of paragraph 3.1.1 and 3.1.2 shall be "encapsulés" instead of "enrobés". Same for following text.

Justification

The proposal is considered an editorial modification to include cast-resin moulded dry-type transformers which are considered in paragraph 3.1.1.

c) Clause 4Modification

- Substitute the wording, "tap-changing" at the end of the clause by "links or tap-selectors".

Justification

The new text is considered a necessary improvement in the wording.

d) Clause 8Modification

- Add after point t) a new point:
 - u) Degree or degrees of protection IP in accordance with IEC Publication No. 529 (HD 365) when an enclosure is provided.

Justification

This amendment is related to some particular installation conditions of dry-type transformers.

e) Table IV - Temperature rise limitsModification

- Amend the values in the table after the line 155 (F) - 100 as follows:

1	2	3
.
	180(H)	125
	200	135
	220	150
.

Justification

These changes are due to the need to harmonize this document with IEC publication 85 (1984) with the relevant correction for maximum temperature rise.

f) Clause 19Modification

- Add at the end of the note a new sentence as follows:
"Taking into account the above statement, slight deviations in current wave-form are not reasons for rejection".

Justification

This sentence is self-explanatory. A decision on the satisfactory behaviour of the tested unit depends also on results of tests under Clause 20.

g) Clause 20

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Modification

- Change heading as follows:
"20. Partial discharge measurement (special or routine test)"
- In Sub-clause 20.1 change last sentence as follows:
"The partial discharge measurement is performed on transformers having U_m equal to or exceeding 3.6 kV in accordance with IEC Publication 270: Partial Discharge Measurements. It is a routine test for transformers having encapsulated windings and special test for other transformers".
- In Sub-clause 20.5 add after the first sentence:
"Unless otherwise specified, for encapsulated transformers, the value of the acceptance level at the measuring voltage is 20 pC.
For non-encapsulated transformers the acceptance level is to be agreed. "For U_m greater than 1.25 rated voltage the value of U_m has to be replaced by 1.25 rated voltage for the calculation of the pre-stresses and the measuring voltage, to avoid over-excitation of the transformer when U_m is

much higher than rated voltage".

- 2nd paragraph of Sub-clause 20.5 to be deleted.

Justification

This test is considered fundamental especially for encapsulated transformers, considering also the difficulties mentioned for Clause 19 above.

The procedure mentioned under 20.5 is not applicable to dry-type transformers.

- h) Sub-clause 21.2 - Winding temperature-rise correction for reduced current

Modification

- Add at the end of this subclause a note:

"Note - For other cooling methods (e.g. transformers sealed in enclosures or gas-cooled transformers), the value of q shall be agreed between the manufacturer and the purchaser".

Justification

This note, taken from Belgian Standards, is found useful to avoid misunderstandings during tests.

- i) Section Six - Enclosures

Modification

- The title shall be amended as follows:

"Section Six - Enclosures and safety requirements".

- At the end of clause 25, the following clauses shall be added:

"26. Protection against direct contact

Transformers in which constructive features do not provide for protection against direct contact, shall be supplied with a visible element (warning plate or special mark) indicating the danger, according to national rules.

27. Earthing terminal

Transformers shall be fitted with an earth terminal which is to be constructionally connected to all exposed metallic conductive non-live parts and which provides for the connection to a protective conductor".

Justification

This amendment is proposed to follow national regulations concerning safety.

Appendix B

Environmental conditions

B1 Environmental conditions for dry-type transformers are identified in terms of humidity, condensation, pollution and ambient temperature. These are important not only during service but also during storage before installation.

With regard to humidity, condensation and pollution, three different environmental classes are defined:

- Class 0 (normal service conditions):
No condensation occurs on the transformers and pollution is negligible.
This is commonly achieved in a clean, dry indoor installation.
- Class 1 Occasional condensation can occur on the transformer (e.g. when the transformer is de-energized).
Limited pollution is possible.
- Class 2 Frequent condensation or heavy pollution or combination of both

The manufacturer shall state for which environmental class the transformer is suitable. Type tests may be agreed to prove suitability to class 1 or 2.

If the transformer may be exposed to a lower temperature than -5°C (down to -25°C) (e.g. during storage, transport: