



SLOVENSKI STANDARD SIST EN 50708-2-5:2021

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Močnostni transformatorji - Dodatne evropske zahteve - 2-5. del: Srednji močnostni transformator - Enofazne naprave

Power transformers - Additional European requirements - Part 2-5: Medium power transformer - Single phase

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Transformateurs de puissance - Exigences européennes supplémentaires - Partie 2-5 : Transformateurs de moyenne puissance monophasés

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EUROPEAN STANDARD

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English Version

Power transformers - Additional European requirements - Part 2-5: Medium power transformer - Single phase

Transformateurs de puissance - Exigences européennes supplémentaires - Partie 2-5 : Transformateurs de moyenne puissance monophasés

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European Committee for Electrotechnical Standardization
Comité Européen de Normalisation Electrotechnique
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CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

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European foreword

This document (EN 50708-2-5:2021) has been prepared by CLC/TC 14 "Power transformers".

The following dates are fixed:

- latest date by which this document has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 2022-07-05
- latest date by which the national standards conflicting with this document have to be withdrawn (dow) 2024-07-05

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EN 50708-2-5:2021 (E)**Introduction**

This part is a part of EN 50708 series deals with the energy performance of liquid single-phase Medium Power Transformers.

For the purpose of this document, the requirements of the general EN 50708-1-1:2020 apply.

This document contains particular requirements for specific transformers or transformer applications, which are based on the requirements of the general EN 50708-1-1:2020.

This document should be considered in conjunction with the requirements of the general parts.

The particular requirements of the different sub parts of EN 50708 supplement, modify or replace certain requirements of the general parts of EN 50708-1 and/or EN 50708-1-X being valid at the time of publication of this document. The absence of references to the exclusion of a part or a clause of a general part means that the corresponding clauses of the general part are applicable (undated reference).

Requirements of other -X parts with X greater than 1 being eventually relevant for cases covered by this document also apply. This document could therefore also supplement, modify or replace certain of these requirements valid at the time of publication of this document.

The main clause numbering of each part follows the pattern and corresponding references of EN 50708-1-1:2020. The numbers following the particular number of this document are those of the corresponding parts, or clauses of the other parts of the EN 50708 series, valid at the time of publication of this document.

In the case where new or amended general parts with modified numbering were published after the sub part was issued, the clause numbers referring to a general part in sub parts might no longer align with the latest edition of the general part. Dated references should be observed.

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1 Scope

The scope of this document is to define the energy performance of liquid immersed single-phase Medium Power Transformers in compliance with EN 50708-1-1:2020.

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.

EN 50708-1-1:2020, *Power transformers - Additional European requirements: Part 1-1: Common part - General requirements*

EN 50708-2-1, *Power transformers - Additional European requirements: Part 2-1 Medium power transformer - General requirements*

EN 50708 (series), *Power transformers - Additional European requirements*

EN 60076-1, *Power transformers - Part 1: General (IEC 60076-1)*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN 50708 series apply.

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

— ISO Online browsing platform: available at <https://www.iso.org/obp>

— IEC Electropedia: available at <http://www.electropedia.org/>

4 Service conditions

EN 60076-1 applies.

5 Rating and general requirements

5.1 General

EN 50708-2-1 applies unless otherwise stated in this document.

The following table gives the minimum Peak Efficiency Index of losses for single phase transformers.

The Peak Efficiency Index classes remains the same for all highest voltage for equipment values (U_m) regardless of the additional loss corrections specified in EN 50708-2-1.

NOTE 1 Single phase transformers represent a small part of network transformers in European countries with a large diversity of specifications and applications. The possibility of standard components for this kind of transformer is therefore difficult to reach because no common rules to define standard losses existed until now. That is the reason why PEI has been chosen to procure a guidance for the market.

NOTE 2 Commission Regulation (EU) No 548/2014 of 21 May 2014 and its amendment No 2019/1783 of 1 October 2019 doesn't include specific energy performance requirement for liquid immersed single-phase Medium Power Transformers

EN 50708-2-5:2021 (E)**5.2 PEI values for single-phase liquid immersed transformers**

For liquid immersed single-phase transformers with a de-energized tapping range $\leq 7,5\%$ Table 1 applies.

Table 1 — PEI values for liquid immersed single-phase transformers

Sr (kVA)	Minimum Peak efficiency index %	
	TIER 1	TIER 2
16	98,380	98,480
25	98,500	98,650
33	98,610	98,800
50	98,730	98,891
100	98,900	99,093
160	99,012	99,191
250	99,112	99,283
315	99,154	99,320
400	99,209	99,369
500	99,247	99,398
630	99,295	99,437
800	99,343	99,473
1 000	99,360	99,484
1 250	99,418	99,487
1 600	99,424	99,494
2 000	99,426	99,502
2 500	99,441	99,514
3 150	99,444	99,518

6 Rating plate

The additional requirements for rating plate are given in EN 50708-1-1:2020.

7 Tolerances

The additional requirements for tolerances are given in EN 50708-1-1:2020.

8 Tests

During factory acceptance tests, the PEI value calculated from the losses measurement shall be equal to or higher than the values given in Table 1.

The test report of the transformers shall report the PEI value and the corresponding kPEI.

9 Accessories and fittings

List of accessories and fittings are under development in relevant parts.

10 Capitalization of losses

The additional requirements for capitalization of losses are given in EN 50708-1-1:2020.

11 Transformers overhaul

The additional requirements for transformers overhaul are given in EN 50708-1-1:2020.

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Bibliography

EN IEC 60076-22-7, *Power transformers - Part 22-7: Power transformer and reactor fittings - Accessories and fittings*

IEC/TR 60616:1978, *Terminals and tapping markings for power transformers*

EN 50708-3-1, *Power transformers - Additional European requirements: Part 3-1 Large power transformer - General requirements*

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