



**NSAI**  
Standards

Irish Standard  
I.S. EN 50708-2-1:2020&AC:2020-12

# Power transformers - Additional European requirements: Part 2-1 Medium power transformer - General requirements

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I.S. EN 50708-2-1:2020&AC:2020-12

*Incorporating amendments/corrigenda/National Annexes issued since publication:*

EN 50708-2-1:2020/AC:2020-12

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I.S. xxx: Irish Standard — national specification based on the consensus of an expert panel and subject to public consultation.

S.R. xxx: Standard Recommendation — recommendation based on the consensus of an expert panel and subject to public consultation.

SWiFT xxx: A rapidly developed recommendatory document based on the consensus of the participants of an NSAI workshop.

*This document replaces/revises/consolidates the NSAI adoption of the document(s) indicated on the CEN/CENELEC cover/Foreword and the following National document(s):*

*NOTE: The date of any NSAI previous adoption may not match the date of its original CEN/CENELEC document.*

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## National Foreword

I.S. EN 50708-2-1:2020&AC:2020-12 is the adopted Irish version of the European Document EN 50708-2-1:2020, Power transformers - Additional European requirements: Part 2-1 Medium power transformer - General requirements

This document does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

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*In line with international standards practice the decimal point is shown as a comma (,) throughout this document.*

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Corrigendum to EN 50708-2-1:2020

English version

*In 5.1.1, replace the second sentence:*

"The values of the highest voltage  $U_m$  for equipment are:"

*with*

"The preferred values of the highest voltage  $U_m$  for equipment are:"

*Replace the title of 5.2.1.2 with:* "Load losses and no-load losses for one winding with  $U_m \leq 24$  kV"

*In 5.2.1.2, replace the first paragraph:*

"The following tables are defined for step down or step up transformers with one winding with  $U_m \leq 24$  kV and the other one with  $U_m \leq 3,6$  kV. Table 1 is for liquid immersed transformers and Table 2 for dry-type transformers."

*with*

"The following tables are defined for step down or step up transformers with one winding with  $U_m \leq 24$  kV. Table 1 is for liquid immersed transformers and for new installation of pole mounted, and Table 2 for dry-type transformers."

*Replace the title of Table 1 with:* "Table 1 — Losses, short circuit impedance and sound power level for liquid immersed and for new installation of pole mounted transformers".

*Replace Table 3 as follows:*

"

**Table 3 — Corrections of the losses for highest voltage**

| Special combination of voltages in one winding      |   | Load losses<br>( $P_k$ ) | No-load losses<br>( $P_o$ ) |
|---|---|--------------------------|-----------------------------|
| <b>For liquid immersed (Table 1)</b>                |   |                          |                             |
| Primary highest voltage for equipment $U_m = 36$ kV | Secondary highest voltage for equipment $U_m \leq 3,6$ kV | 10 %                     | 15 %                        |
| Primary highest voltage for equipment $U_m = 36$ kV | Secondary highest voltage for equipment $U_m > 3,6$ kV    | 10 %                     | 15 %                        |
| <b>For dry type (Table 2)</b>                       |   |                          |                             |
| Primary highest voltage for equipment $U_m = 36$ kV | Secondary highest voltage for equipment $U_m \leq 3,6$ kV | 10 %                     | 15 %                        |
| Primary highest voltage for equipment $U_m = 36$ kV | Secondary highest voltage for equipment $U_m > 3,6$ kV    | 15 %                     | 20 %                        |

"

December 2020

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EUROPEAN STANDARD

**EN 50708-2-1**

NORME EUROPÉENNE

EUROPÄISCHE NORM

May 2020

ICS 29.180

Supersedes EN 50588-1:2017 (PART) and all of its  
amendments and corrigenda (if any)

English Version

## Power transformers - Additional European requirements: Part 2- 1 Medium power transformer - General requirements

Transformateurs de puissance - Exigences européennes  
supplémentaires : Partie 2-1 Transformateurs de moyenne  
puissance

To be completed

This European Standard was approved by CENELEC on 2019-10-09. 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 CEN-CENELEC Management Centre 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 CEN-CENELEC Management Centre has the same status as the official versions.

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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**

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## European foreword

This document (EN 50708-2-1:2020) 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) 2020-11-22
- latest date by which the national standards conflicting with this document have to be withdrawn (dow) 2023-05-22

This document supersedes EN 50588-1:2017 and all of its amendments and corrigenda (if any).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CENELEC shall not be held responsible for identifying any or all such patent rights.

This document has been prepared under a mandate given to CENELEC by the European Commission and the European Free Trade Association and supports essential requirements of EU Directive(s).

For the relationship with EU Directive(s) see informative Annex ZZ, which is an integral part of this document.

## Introduction

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 subparts 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, as indicated in the normative references of this document (dated reference).

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

## 1 Scope

The scope of this document is to define the energy performance of 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 60076-1:2011, *Power transformers - Part 1: General*

EN 60076-3:2013, *Power transformers - Part 3: Insulation levels, dielectric tests and external clearances in air*

EN IEC 60076-11:2018, *Power transformers - Part 11: Dry-type transformers*

## 3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN 50708-1-1:2020 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>

## 4 Service conditions

See EN 60076-1:2011.

## 5 Rating and general requirements

### 5.1 General

#### 5.1.1 Highest voltages for equipment for winding with $U_m > 1,1$ kV

Insulation levels and dielectric test shall be in accordance with the requirements of EN 60076-3:2013 and for dry type transformers in accordance with EN IEC 60076-11:2018.

The values of the highest voltage  $U_m$  for equipment are:

3,6 kV – 7,2 kV – 12 kV – 17,5 kV – 24 kV – 36 kV

NOTE National practices might require the use of highest voltages for equipment up to (but not including) 52 kV, when the rated voltage is less than 36 kV (such as  $U_m = 38,5$  kV or  $U_m = 40,5$  kV).

#### 5.1.2 Rated voltage for winding with $U_m \leq 1,1$ kV

For  $U_m \leq 1,1$  kV, the preferred rated voltage value shall be chosen in the hereunder list:

400 V – 410 V – 415 V – 420 V – 433 V – 690 V

This document may be applied either as a whole or in part, to transformers with rated low voltages below 400 V and above 690 V.

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