



**NSAI**  
Standards

Irish Standard  
I.S. EN 50708-3-1:2020

# Power transformers - Additional European requirements: Part 3-1 Large power transformer - General requirements

**I.S. EN 50708-3-1:2020**

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

The National Standards Authority of Ireland (NSAI) produces the following categories of formal documents:

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.*

*This document is based on:*

EN 50708-3-1:2020

*Published:*

2020-05-22

*This document was published under the authority of the NSAI and comes into effect on:*

2020-06-08

ICS number:

29.180

NOTE: If blank see CEN/CENELEC cover page

NSAI  
1 Swift Square,  
Northwood, Santry  
Dublin 9

T +353 1 807 3800  
F +353 1 807 3838  
E standards@nsai.ie  
W NSAI.ie

Sales:  
T +353 1 857 6730  
F +353 1 857 6729  
W standards.ie

Údarás um Chaighdeáin Náisiúnta na hÉireann

## National Foreword

I.S. EN 50708-3-1:2020 is the adopted Irish version of the European Document EN 50708-3-1:2020, Power transformers - Additional European requirements: Part 3-1 Large 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.

For relationships with other publications refer to the NSAI web store.

**Compliance with this document does not of itself confer immunity from legal obligations.**

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

This page is intentionally left blank

EUROPEAN STANDARD

**EN 50708-3-1**

NORME EUROPÉENNE

EUROPÄISCHE NORM

May 2020

ICS 29.180

Supersedes EN 50629:2015 (PART) and all of its amendments and corrigenda (if any)

English Version

## Power transformers - Additional European requirements: Part 3-1 1 Large power transformer - General requirements

Transformateurs de puissance - Exigences européennes supplémentaires: Partie 3-1 : Transformateurs de grande 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.

CENELEC members are the national electrotechnical committees of Austria, Belgium, Bulgaria, Croatia, Cyprus, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.



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**

<b>Contents</b>	<b>Page</b>
European foreword .....	3
Introduction .....	4
1 Scope .....	5
2 Normative references .....	5
3 Terms and definitions .....	5
4 Service condition .....	5
5 Rating and general requirements.....	5
5.1 Energy performance requirements .....	5
5.1.1 General.....	5
5.1.2 Minimum PEI values .....	5
5.1.3 Optimization of transformer losses according to application .....	8
6 Rating plate .....	8
7 Tolerances .....	8
8 Acceptance Tests .....	8
9 Accessories and fittings .....	8
10 Capitalization of losses .....	8
11 Transformers overhaul.....	8
Annex A (Informative) Peak Efficiency Index formula, graphs and calculations.....	9
Annex ZZ (informative) Relationship between this European Standard and the ecodesign requirements of Commission Regulation (EU) No 548/2014 of 21 May 2014 and its amendment No 2019/1783 of 1 October 2019 on implementing Directive 2009/125/EC of the European Parliament and of the Council with regard to small, medium and large power transformers aimed to be covered .....	14
Bibliography .....	16

## **European foreword**

This document (EN 50708-3-1:2020) 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 50629:2015 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 requirements of Commission Regulation (EC).

For the relationship with requirements of Commission Regulation (EC) see informative Annex ZZ, which is an integral part of this document.

**EN 50708-3-1:2020 (E)**

## **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 performance requirements of Large Power Transformers in compliance with EN 50708-1-1:2020.

NOTE This document covers the transformers under Commission Regulation (EU) No 548/2014 of 21 May 2014 and its amendment No 2019/1783 of 1 October 2019, gives additional specific guidance for single phase transformers, autotransformers, multi winding transformers and for transformers with OD and OF cooling systems, necessary for the correct application of energy efficiency requirements to these categories of transformers.

## 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*

## 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 condition

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

## 5 Rating and general requirements

### 5.1 Energy performance requirements

#### 5.1.1 General

For Large power transformers the energy performance requirement consist of a minimum value of Peak Efficiency Index which is the maximum value of the Efficiency Index.

The Peak Efficiency Index is to be calculate in accordance with EN 50708-1-1:2020.

The tables in this clause indicate the minimum energy performances for TIER1 and TIER2.

TIER1 has been applied since 1 July 2015 for the values of losses following Commission Regulation (EU) No 548/2014 of 21 May 2014 and its amendment No 2019/1783 of 1 October 2019.

TIER2 shall be applied from 1 July 2021 for the values of losses following Commission Regulation (EU) No 548/2014 of 21 May 2014 and its amendment No 2019/1783 of 1 October 2019.

#### 5.1.2 Minimum PEI values

Liquid immersed and dry type large power transformers shall have Minimum Peak Efficiency Index values according to Table 1, Table 2 and Table 3 respectively.

For rated powers different from the ones reported in Table 1, Table 2 and Table 3, the corresponding PEI value shall be obtained by linear interpolation from the two adjacent values.

The PEI requirements apply to transformers and auto-transformers.

This is a free preview. Purchase the entire publication at the link below:

[Product Page](#)

- 
- [Looking for additional Standards? Visit Intertek Inform Infostore](#)
  - [Learn about LexConnect, All Jurisdictions, Standards referenced in Australian legislation](#)
-