SLOVENSKI STANDARD
SIST EN 50708-2-3:2022

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Močnostni transformatorji - Dodatne evropske zahteve - 2-3. del: Srednji močnostni transformatorji - Pribor

Power transformers - Additional European requirements - Part 2-3: Medium power transformer - Accessories

Transformateurs de puissance - Exigences européennes supplémentaires - Partie 2-3 : Transformateurs de moyenne puissance - Accessoires

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29.180	Transformatorji. Dušilke	Transformers. Reactors

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English Version

Power transformers - Additional European requirements - Part 2-3: Medium power transformer - Accessories

Transformateurs de puissance - Exigences européennes supplémentaires - Partie 2-3 : Transformateurs de moyenne puissance - Accessoires

Leistungstransformatoren - Zusätzliche europäische Anforderungen - Teil 2-3: Mittelleistungstransformatoren - Zubehör

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European Committee for Electrotechnical Standardization
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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 50708-2-3:2022) 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) 2023-08-15
- latest date by which the national standards conflicting with this document have to be withdrawn (dow) 2025-08-15

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Introduction

This part of the EN 50708 series deals with the accessories.

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.

1 Scope

This document describes the list of typical accessories used for liquid and dry type Medium Power Transformers (≤ 3 150 kVA).

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 50708 (all parts), *Power transformers — Additional European requirements*

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

EN 50180 (all parts), *Bushings above 1 kV up to 36 kV and from 250 A to 3,15 kA for liquid filled transformers*

EN 50336, *Bushings for transformers and reactor cable boxes not exceeding 36 kV*

EN 50386, *Bushings up to 1 kV and from 250 A to 5 kA, for liquid filled transformers*

EN 50387, *Busbar bushings up to 1 kV and from 1,25 kA to 5 kA, for liquid filled transformers*

EN IEC 60076-22-7:2020, *Power transformers - Part 22-7: Power transformer and reactor fittings - Accessories and fittings*

IEC/TR 60616, *Terminal and tapping markings for power transformers*

EN IEC 60076-11, *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 (all parts) 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 https://www.electropedia.org/

4 Service conditions

Refer to EN 60076-1.

5 Electrical characteristics

These shall comply with EN 50708-2-1.

6 Design requirements

6.1 Liquid immersed transformers

6.1.1 Type of liquid preservation system

The type of liquid preservation system shall be indicated in the enquiry and order.

6.1.2 Terminals

The terminations to be used can be of the following types:

a) open type bushings;

b) plug-in type bushings;

c) LV busbars.

The requirements of the different types of terminations are described in the following standards: EN 50180 (all parts), EN 50386, EN 50387 and EN 50336.

6.1.3 Terminal markings

Terminal markings shall be in accordance with IEC/TR 60616 unless otherwise specified.

6.1.4 Distance between bushings

For open type bushing, the preferred distance between centres of low voltage bushings can be defined as below:

— For currents up to 250 A 70 mm;

— For currents above 250 A and up to 2 000 A 150 mm;

— For currents above 2 000 A 165 mm.

Distances between centres are indicated in EN 50336 for LV cable box connections made through mono block bushing.

6.1.5 Wheels

Wheels shall be in accordance with Annex B of EN IEC 60076-22-7:2020 unless otherwise specified. The dimensions in Table 1 are identical to IEC, but Table 1 additionally defines the maximum load per wheel.

The manufacturer is responsible for the maximum load per wheels considering the raw material and design of the wheels.

Table 1 — Characteristics of the wheels with design of Figure 1

Type	Diameter mm D	Height mm H	Thickness mm T	Max load per wheel (Metric ton)
W1 – A	125	152	40	2,5
W1 – B	160	195	50	3,6
W1 – C	200	230	70	6,3

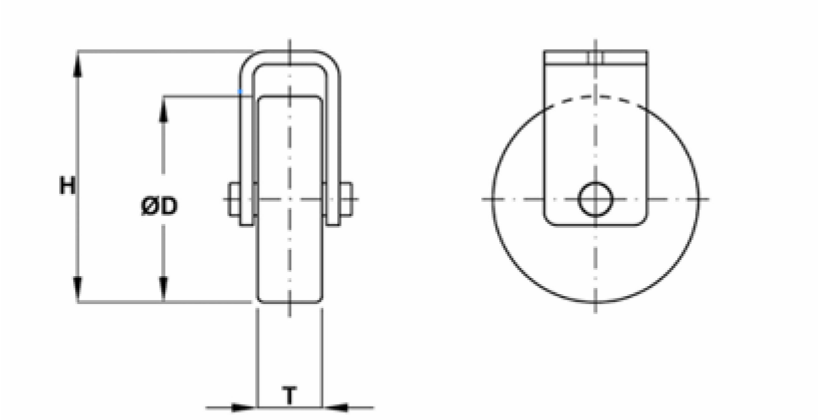

Figure 1 — Dimensions of the wheel assembly type W1

6.1.6 Filling hole

The diameter of the hole in the cover is 60 mm ± 1 mm.

By agreement between purchaser and manufacturer, other arrangements are admitted, such as filling pipes with preferred inside diameter of 51 mm (2”) or 25,4 mm (1”).

6.2 Dry-type transformers

6.2.1 Terminals

HV and LV terminals could be located on the upper side or middle part or lower side.

At the enquiry stage the exact positions of HV leads/terminals, LV leads/terminals and tapping shall be stated.

When terminals with special dimensions or positions are requested, this shall be done at the enquiry stage and agreed between manufacturer and purchaser.

6.2.2 Terminal markings

Terminal markings shall be in accordance with IEC/TR 60616 unless otherwise specified.

6.2.3 Wheels

Refer to 6.1.5.

6.2.4 Enclosure

Refer to EN IEC 60076-11.

7 Accessories

7.1 Liquid immersed transformers

Accessories shall be in accordance with the appropriate parts of EN IEC 60076-22-7:2020 when applicable.

If not otherwise specified, transformers shall be fitted with the accessories marked with an “X” as listed in Table 2. Accessories not crossed in this table are optional.

Special care should be taken to avoid conflicts between accessories which may be non-compatible.

Table 2 — List of accessories (not exhaustive)

Type	Hermetically sealed and integrally filled	Breathing type with conservator	Air cushion
Tap changer	X	X	X
Rating plate	X	X	X
Lifting device	X	X	X
Filling hole and plug	X	X	X
Wheels or skid chassis (Not applicable for pole mounted)	X	X	X
Oil level indicator(s)		X	X
Conservator draining plug(s)		X	
Dehydrating breather(s)		X	
Gas and oil actuated relay(s)		X	
Butterfly valve			
Thermometer pocket			
Pad-locking tap changer handle			
Protective device			
Conservator drain valve			
Main tank oil drain valve			
Removable radiators instead of fixed radiator			
Removable radiators insulating Butterfly valve			
Jacking pads			
Pulling eyes			
Earthing terminals	X	X	X