



IEEE Standard for Pad-Mounted-Type, Self-Cooled, Single-Phase Distribution Transformers 250 kVA and Smaller: High Voltage, 34 500 GrdY/19 920 V and Below; Low Voltage, 480/240 V and Below

IEEE Power and Energy Society

Developed by the
Transformers Committee

IEEE Std C57.12.38™-2025
(Revision of IEEE Std C57.12.38-2014)

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Abstract: Certain electrical, dimensional, and mechanical characteristics are covered in this standard, and certain safety features of single-phase, 60-Hz, liquid-filled, self-cooled, pad-mounted, compartmental-type distribution transformers are taken into consideration. These transformers are rated 250 kVA and smaller, with high voltages of 34 500 GrdY/19 920 V and below, and with low voltages of 480/240 V and below. These transformers are generally used for step-down purposes from an underground primary cable supply. The connector, bushing, and terminal arrangements for radial or loop feed systems are covered in this standard. The electrical and mechanical requirements of any accessory devices that may be supplied with the transformer are not covered in this standard.

Keywords: distribution transformers, IEEE C57.12.38™, pad-mounted, padmounted, single phase, single-phase, transformer

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The following members of the individual Standards Association balloting group voted on this standard. Balloters may have voted for approval, disapproval, or abstention.

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Introduction

This introduction is not part of IEEE Std C57.12.38-2024, IEEE Standard for Pad-Mounted-Type, Self-Cooled, Single-Phase Distribution Transformers 250 kVA and Smaller: High Voltage, 34 500 GrdY/19 920 V and Below; Low Voltage, 480/240 V and Below.

The Accredited Standards Committee on Transformers, Regulators, and Reactors, C57, has for many years been developing standards on transformers, regulators, and reactors. The data has been obtained from many sources including the standards of The Institute of Electrical and Electronics Engineers (IEEE) and the National Electrical Manufacturers Association (NEMA), reports of committees of the Edison Electrical Institute, and others.

In 2009, the first version of this standard was prepared. It replaced and combined ANSI C57.12.21-1992 and ANSI C57.12.25-1990 and was generally revised to comply with the then approved style for published standards.

In 2014, the ratings have been increased to include a 250 kVA rating, additional figures for low voltage line and neutral terminal arrangements and dimensions have been added, and the details for low voltage line and neutral studs were expanded.

In this version of the standard, the following changes were incorporated:

- Added new [Table 4](#) [Transformer and connector high-voltage ratings and electrical characteristics for dead-front transformers (series-multiple)], [subclause 4.4](#) (Impedance voltage) along with [Table 5](#) (Nominal percent impedance voltage).
- With new [Table 4](#) and [Table 5](#) inserted, all tables after [Table 5](#) have been renumbered.
- The adoption of IEEE Std C57.12.39 was introduced in [7.1](#), which caused the removal of 10.1 (Tank construction), 10.2 (Strength), and almost all of Clause 11 (Pressure relief valve) except for the requirement of locating the PRV as described in new [7.7.3](#) [Pressure relief valve (PRV)].⁶
- Subclauses 10.3 (Pressure testing and oil access) and 10.4 (Tank Covers) were moved to new [7.7.1](#) (Pressure testing, liquid access and liquid level indication) and [7.7.2](#) (Tank Covers), respectfully, and none of the documented material within the subclauses was changed.
- New [7.7](#) (Liquid preservation) was created to coincide with IEEE Std C57.12.20 [B2].⁷
- Clauses were renumbered after [Clause 9](#) due to the restructuring of the document to accommodate reference to IEEE Std C57.12.39.
- Added Corrigendum 1 on Figure 1A ([Figure 1](#) in this standard) published in 2016 to address the lower dimension showing the height of the high-voltage bushings above the base of the transformer (597 + 114 / -13) designated for 167 kVA and 250 kVA only.
- Updated all figures, with [Figure 1](#), [Figure 2](#), [Figure 3](#), [Figure 4](#), [Figure 5](#), [Figure 6](#), and [Figure 9](#) drawn to scale.
- The informative Bibliography has been moved from Annex A to [Annex B](#), and a new informative [Annex A](#) (Overview of accessories) has been added.

This standard was prepared by the WGC57.12.38 – Distribution – Pad-Mount 1 Self-Cool ≤250 kVA Working Group of the Transformers Committee of the IEEE Power and Energy Society.

⁶ Information on references can be found in [Clause 2](#).

⁷ The numbers in brackets correspond to those of the bibliography in [Annex B](#).

Contents

1. Overview.....	12
1.1 Scope.....	12
1.2 Purpose.....	12
1.3 Word usage.....	12
2. Normative references	13
3. Definitions.....	13
4. Ratings	14
4.1 Kilovolt-ampere ratings.....	14
4.2 Voltage ratings.....	14
4.3 Tap ratings	15
4.4 Impedance voltage	16
5. Basic lightning impulse insulation levels	16
6. Tests	16
6.1 General	16
6.2 Dielectric tests	16
6.3 Chopped wave.....	16
7. Construction.....	16
7.1 General	16
7.2 Compartment configuration.....	23
7.3 Access.....	24
7.4 High-voltage and low-voltage compartments.....	24
7.5 Pad attachment	24
7.6 Lifting.....	24
7.7 Liquid preservation.....	24
8. Connectors, bushings, and terminals	25
8.1 Electrical characteristics.....	25
8.2 High-voltage terminals	25
8.3 Low-voltage terminals.....	26
8.4 Designations.....	28
9. Instruction nameplate	28
9.1 Location.....	28
9.2 Information.....	29
10. Grounding and lightning arrester attachment provisions.....	30
10.1 Grounding provisions	30
10.2 Lightning arrester attachment.....	30
11. Components for loop primary cable systems	30
12. Storage	30
13. Installation.....	30
14. Other requirements that may be specified for some applications.....	30
Annex A (informative) Overview of accessories	31
Annex B (informative) Bibliography	37

List of Figures

Figure 1—Type 1 arrangement, separable connectors, interchangeability dimensions (for voltage-specific dimensions and notes, see Table 6).....	17
Figure 2—Type 1 arrangement, large interface separable connectors, and interchangeability dimensions (for voltage-specific dimensions and notes, see Table 6).....	18
Figure 3—Type 2 arrangement, separable connectors, interchangeability dimensions (for voltage-specific dimensions and notes, see Table 7).....	20
Figure 4—Type 2 arrangement, large interface separable connectors, interchangeability dimensions (for voltage-specific dimensions and notes, see Table 7).....	21
Figure 5—Live front, high-voltage bushings, interchangeability dimensions.....	23
Figure 6—Low-voltage line and neutral terminal details	26
Figure 7—Low-voltage line and neutral stud details.....	27
Figure 8—Low-voltage line and neutral terminal arrangements	28
Figure 9—Low-voltage line and neutral terminal dimensions	29

List of Tables

Table 1—Kilovolt-ampere ratings.....	14
Table 2—Electrical characteristics and minimum electrical clearances of high-voltage bushings and low-voltage terminals for live-front transformers	14
Table 3—Transformer and connector high-voltage ratings and electrical characteristics for dead-front transformers.....	15
Table 4—Transformer and connector high-voltage ratings and electrical characteristics for dead-front transformers (series-multiple).....	15
Table 5—Nominal percent impedance voltage.....	16
Table 6—Voltage-specific dimensions for Figure 1 and Figure 2	19
Table 7—Voltage-specific dimensions for Figure 3 and Figure 4	22
Table A.1—Common protection schemes	31