

IEEE Standard Requirements for Pad-Mounted, Compartmental-Type, Self-Cooled, Three-Phase Distribution Transformers, 10 MVA and Smaller; High-Voltage, 34.5 kV Nominal System Voltage and Below; Low-Voltage, 15 kV Nominal System Voltage and Below

IEEE Power and Energy Society

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Transformers Committee

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Abstract: Certain electrical, dimensional, and mechanical characteristics are set forth as well as certain safety features of three-phase, 60 Hz, liquid-immersed, self-cooled, pad-mounted, compartmental-type distribution transformers. These transformers are rated 10 MVA and smaller, with the high-voltage limit of 34.5 kV nominal system voltage and below, and with low-voltage limit of 15 kV nominal system voltage and below. This standard covers the connector, bushing, and terminal arrangements for radial or loop feed systems. This standard does not cover the electrical and mechanical requirements of any accessory devices that may be supplied with the transformer.

Keywords: compartmental, connector arrangements, loop, pad-mounted, pad-mount distribution transformers, radial, three phase, transformer

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Introduction

This introduction is not part of IEEE Std C57.12.34™-2015, IEEE Standard Requirements for Pad-Mounted, Compartmental-Type, Self-Cooled, Three-Phase Distribution Transformers, 10 MVA and Smaller; High-Voltage, 34.5 kV Nominal System Voltage and Below; Low-Voltage, 15 kV Nominal System Voltage and Below.

This standard was first published in 2004, and was a revision and combination ANSI Std C57.12.22™-1993 American National Standard for Transformers—Pad-Mounted, Compartmental-Type, Self-Cooled Three-Phase Distribution Transformers with High-Voltage Bushings, 2500 kVA and Smaller: High Voltage, 34 500 Grd Y/19 920 Volts and Below; Low Voltage, 480 Volts and Below—Requirements; and IEEE Std C57.12.26™-1992 IEEE Standard for Pad-Mounted, Compartmental-Type, Self-Cooled, Three-Phase Distribution Transformers for Use with Separable Insulated High-Voltage Connectors (34 500 Grd Y/19 920 V and Below; 2500 kVA and Smaller). This resulted in a single standard that brought together pad-mounted transformers with either high-voltage bushing or separable connectors.

In 2009, the standard was revised and two significant changes to the scope were made. First, the size of units were increased to 5 MVA, and second the low-voltage rating was changed from 480 V and below to 15 kV and below. This facilitated the development of standard requirements for pad-mounted transformers that could be used for step-down as well as distribution service and required substantial updating of the majority of figures and tables.

For this revision of the standard the scope of the standard was expanded to include pad-mounted transformers up to 10 MVA. To reflect this change a new figure was added, and many of the table and figures of this standard were updated to include the characteristics and dimensions of the larger units. In addition, many of the figures were updated to include optional high-voltage neutral bushings, and the standard was generally revised. The standard was also updated to current style requirements.

This standard was prepared by the Working Group of the Subcommittee on Distribution Transformers, for Three-Phase, Pad-Mounted Transformers.

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1. Overview

1.1 Scope

This standard covers certain electrical, dimensional, and mechanical characteristics and takes into consideration certain safety features of three-phase, 60 Hz, liquid-filled, self-cooled, pad-mounted, compartmental-type distribution transformers. These transformers are rated 10 MVA and smaller, with the high-voltage limit of 34.5 kV system nominal voltage and below, and with low-voltage limit of 15 kV system nominal voltage and below. These transformers are generally used for step-down purposes from an underground primary cable supply. This standard covers the connector, bushing, and terminal arrangements for radial or loop-feed systems. Either certain minimum dimensions or certain specific dimensions shall be specified. This standard does not cover the electrical and mechanical requirements of any accessory devices that may be supplied with the transformer.