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IEEE Standard for Submersible, Three-Phase Transformers, 3750 kVA and Smaller: High Voltage, 34 500 GrdY/19 920 Volts and Below; Low Voltage, 600 Volts and Below

IEEE Power and Energy Society

Sponsored by the
Transformers Committee

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(Revision of
IEEE Std C57.12.24-2009)

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IEEE Power and Energy Society

Approved 7 December 2016

IEEE-SA Standards Board

Abstract: Certain electrical, dimensional, and mechanical characteristics are covered in this standard. It also takes into consideration certain safety features of three-phase, 60 Hz, liquid-immersed, self-cooled, submersible transformers with separable insulated high-voltage connectors. These transformers are rated 3750 kVA and smaller with high voltages of 34 500 GrdY/19 920 V and below and with low voltages of 600 V and below.

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Introduction

This introduction is not part of IEEE Std C57.12.24-2016, IEEE Standard for Submersible, Three-Phase Transformers, 3750 kVA and Smaller: High Voltage, 34 500 GrdY/19 920 Volts and Below; Low Voltage, 600 Volts and Below.

The Accredited Standards Committee on Transformers, Regulators, and Reactors, C57, has for many years has 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, Inc. (IEEE) and the National Electrical Manufacturers Association (NEMA), as well as reports of committees of the Edison Electrical Institute, manufacturers, end users, and others.

The revision of this standard includes additional mechanical and electrical requirements for accessories relating to pressure relief, loadbreak switch, and overcurrent protection. The revision makes changes, including but not limited, to the following topics:

— Tank material

— Impedance voltage changes

— Kilovolt-ampere rating

The revision also addresses various corrections and omissions not previously captured in the 2009 revision.

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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-immersed, self-cooled, submersible transformers with separable insulated high-voltage connectors. These transformers are rated 3750 kVA and smaller with high voltages of 34 500 GrdY/19 920 V and below and with low voltages of 600 V and below. These transformers are generally used for step-down purposes from an underground primary cable supply. These transformers are typically installed in an enclosure below ground level, operated from above and suitable for continuous submerged operation.

1.2 Purpose

This standard is intended for use as a basis for establishing the performance, electrical and mechanical interchangeability, and safety of the equipment covered, and to assist in the proper selection of such equipment.

2. Normative references

The following referenced documents are indispensable for the application of this document (i.e., they must be understood and used, so each referenced document is cited in text and its relationship to this document is explained). For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments or corrigenda) applies.