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IEEE Guide for Insulation Maintenance of Electric Machines

IEEE Power and Energy Society

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Electric Machinery Committee

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IEEE Guide for Insulation Maintenance of Electric Machines

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Abstract: This insulation maintenance guide is applicable to rotating electric machines rated from 35 kVA and higher. The procedures detailed herein may also be useful for insulation maintenance of other types of machines.

Keywords: aging mechanisms, alternating, armature, brush, commutator, core, corona, current, distribution factor, EL CID, electric, epoxy, field, flux, Global VPI, groundwall, IEEE 56™, insulation, Ionization, ionizing radiation, machines, maintenance, mica, partial discharge, pitch factor, power-factor, recurrent surge oscillography, reliability, resistance temperature detector, rotating, RSO, RTD, semiconducting stress control coating, service, stator, testing, thermal cycling, thermal deterioration

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Introduction

This introduction is not part of IEEE Std 56-2016, IEEE Guide for Insulation Maintenance of Electric Machines.

This guide represents the merger of the following two standards:

— IEEE Std 432™-1992, IEEE Guide for Insulation Maintenance for Rotating Electrical Machinery (5 HP to less than 10 000 HP).

— IEEE Std 56™-1990, IEEE Guide for Insulation Maintenance of Large Alternating-Current Rotating Machinery 10 000 kVA and Larger.

Contents

IEEE Guide for Insulation Maintenance of Electric Machines

1. Overview

Rotating electric machines are complex structures that are subjected to various levels of stresses and environmental factors and therefore require maintenance. This guide provides an authoritative overview of insulation systems and the various tests and inspections employed for maintenance of them.

1.1 Scope

This insulation maintenance guide is applicable to rotating electric machines rated from 35 kVA and higher. The procedures detailed herein may also be useful for insulation maintenance of other types of machines.

1.2 Purpose

The purpose of this guide is to present information necessary to permit an effective evaluation of the insulation systems of rotating electrical machines. Such an evaluation can serve as a guide to the degree of maintenance or replacement as might be deemed necessary, and also offer some indication of the future service reliability of the equipment under consideration.

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.