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IEEE Standard Test Procedure for Polyphase Induction Motors and Generators

IEEE Power and Energy Society

Sponsored by the
Electric Machinery Committee

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Abstract: Instructions for conducting and reporting the more generally applicable and acceptable tests of polyphase induction motors and generators are covered.

Keywords: acceptance and performance testing, generators, IEEE 112™, induction, machines, motors, polyphase

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Introduction

This introduction is not part of IEEE Std 112-2017, IEEE Standard Test Procedure for Polyphase Induction Motors and Generators.

This standard provides the basic test procedures for evaluating the performance of a polyphase induction motor or generator of any size. Each revision of the standard since its 1964 introduction as an IEEE standard has been to keep the standard current with improvements in instrumentation and test techniques, increased knowledge in the art of measurements, and with the constant change in the needs and desires of the machine users and of those concerned with energy conservation and the like. Portions of the document have been rearranged to accomplish this, and the user is cautioned to check any external references to particular clauses of previous versions for the correct clause number in this version.

Major additions to this revision include load testing by the superposition equivalent loading method. This is an alternative temperature test method that provides advantages for testing large machines that exceed test equipment and power supply limitations. Annex E has been added to this standard to explain the determination of total error.

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IEEE Standard Test Procedure for Polyphase Induction Motors and Generators

1. Overview

1.1 Scope

This standard covers instructions for conducting and reporting the more generally applicable and acceptable tests of polyphase induction motors and generators. Many of the tests described may be applied to both motors and generators, as needed, and no attempt is made to partition the test procedure into clauses and subclauses that separately apply to motors or to generators. Whenever the term *motor* is used, it is to be understood that it may be replaced by the term *generator*, if applicable. Likewise, whenever *machine* is used, it may be replaced by either *motor* or *generator*, if applicable. Since polyphase power systems are almost universally three-phase systems, the equations in this standard have been written specifically for three phases. When the test is performed on other than three-phase power, the equations shall be modified appropriately.

1.2 Purpose

Instructions for conducting and reporting the more generally applicable and acceptable tests are covered to determine the performance and characteristics of polyphase induction motors and generators. Additional tests, not specified herein, may be required to satisfy specific research or application needs. These procedures shall not be interpreted as requiring the performing of any specific test in a given transaction.

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.

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