



UL 1004-1

STANDARD FOR SAFETY

Rotating Electrical Machines – General Requirements

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UL Standard for Safety for Rotating Electrical Machines – General Requirements, UL 1004-1

Second Edition, Dated September 19, 2012

Summary of Topics

This revision of ANSI/UL 1004-1 dated November 5, 2020 includes the following changes in requirements:

Replaced Reference to UL 508C with UL 61800-5-1; [7.1](#)

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The revised requirements are substantially in accordance with Proposal(s) on this subject dated May 29, 2020 and August 28, 2020.

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UL 1004-1

Standard for Rotating Electrical Machines – General Requirements

First Edition – September, 2008

Second Edition

September 19, 2012

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The most recent designation of ANSI/UL 1004-1 as an American National Standard (ANSI) occurred on October 22, 2020. ANSI approval for a standard does not include the Cover Page, Transmittal Pages, and Title Page.

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Annex A – (Normative) – Aging Test on Motors

INTRODUCTION

1 Scope

1.1 This Standard applies to form wound rotating electrical machines rated less than 460 volts and all other rotating electrical machines and linear motors, both AC and DC, rated 1,000 volts or less.

1.2 This Standard is used to evaluate both motors intended to be field installed as well as those intended to be factory installed. Motors intended to be factory installed need not comply with the requirements in Section [12](#), Ventilation Openings; Section [13](#), Accessibility of Uninsulated Live Parts, Film-Coated Wire, and Moving Parts; [16.9 – 16.16](#), [16.28](#), [18.1 – 18.5](#), [33.1 – 33.3](#), [33.5 – 33.7](#), and [34.1](#).

1.3 For the purposes of this Standard, the term “machine” is representative of and equivalent to the terms rotating electrical machine and rotating machine, and is understood to mean all manner of electric motors and generators covered by the scope of this Standard. The term “machine” is understood to apply to both AC and DC machines.

1.4 These requirements do not cover machines intended for use in hazardous locations as defined in the *National Electrical Code*®, NFPA 70.

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1.5 These requirements do not cover sealed (hermetic type) motor-compressor parts, which are evaluated under the Standard for Household and Similar Electrical Appliances – Safety – Part 2-34: Particular Requirements for Motor-Compressors, UL 60335-2-34.

1.6 If the risk of fire does not exist at a machine, part, or circuit, then the requirements of this Standard and associated parts of this Standard, intended to address the risk of fire shall not apply to that machine, part, or circuit.

1.7 If the risk of electric shock does not exist at a machine, part, or circuit, then the requirements of this Standard and associated parts of this Standard, intended to address the risk of electric shock shall not apply to that machine, part, or circuit.

1.8 The requirements of this Standard and associated parts of this Standard, intended to address the risk of fire do not apply to a motor provided with a metal enclosure in which there are no openings in the enclosure through which molten metal, burning insulation, flaming particles, or other ignited material could fall onto flammable material, or through which a flame could be projected.

2 Components

2.1 Except as indicated in [2.2](#), a component of a product covered by this Standard shall comply with the requirements for that component. In particular:

- a) Positive Temperature Coefficient devices (PTCs) used in self-holding thermal motor protectors shall comply with the Standard for Thermistor-Type Devices, UL 1434.
- b) Solid-state controllers shall comply with the Standard for Automatic Electrical Controls for Household and Similar Use, Part 1: General Requirements, UL 60730-1.
- c) Thermal protectors shall comply with the Standard for Automatic Electrical Controls for Household and Similar Use; Part 2 Particular Requirements for Thermal Motor Protectors, UL 60730-2-2.