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C22.2 No. 301-16

Industrial electrical machinery

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Preface

This is the first edition of CSA C22.2 No. 301, *Industrial electrical machinery*, one of a series of Standards issued by CSA Group under Part II of the *Canadian Electrical Code*.

For general information on the Standards of the *Canadian Electrical Code, Part II*, see the Preface of CAN/CSA-C22.2 No. 0, *General Requirements — Canadian Electrical Code, Part II*.

This Standard is considered suitable for use for conformity assessment within the stated scope of the Standard.

This Standard was prepared by the Task Force on Industrial Electrical Machinery, under the jurisdiction of the Technical Committee on Industrial Products, and the Strategic Steering Committee on Requirements for Electrical Safety, and has been formally approved by the Technical Committee.

Interpretations: The Strategic Steering Committee on Requirements for Electrical Safety has provided the following direction for the interpretation of standards under its jurisdiction: “The literal text shall be used in judging compliance of products with the safety requirements of this Standard. When the literal text cannot be applied to the product, such as for new materials or construction, and when a relevant CSA committee interpretation has not already been published, CSA Group’s procedures for interpretation shall be followed to determine the intended safety principle.”

Notes:

- 1) *Use of the singular does not exclude the plural (and vice versa) when the sense allows.*
- 2) *Although the intended primary application of this Standard is stated in its Scope, it is important to note that it remains the responsibility of the users of the Standard to judge its suitability for their particular purpose.*
- 3) *This Standard was developed by consensus, which is defined by CSA Policy governing standardization — Code of good practice for standardization as “substantial agreement. Consensus implies much more than a simple majority, but not necessarily unanimity”. It is consistent with this definition that a member may be included in the Technical Committee list and yet not be in full agreement with all clauses of this Standard.*
- 4) *To submit a request for interpretation of this Standard, please send the following information to inquiries@csagroup.org and include “Request for interpretation” in the subject line:*
 - a) *define the problem, making reference to the specific clause, and, where appropriate, include an illustrative sketch;*
 - b) *provide an explanation of circumstances surrounding the actual field condition; and*
 - c) *where possible, phrase the request in such a way that a specific “yes” or “no” answer will address the issue.*

Committee interpretations are processed in accordance with the CSA Directives and guidelines governing standardization and are available on the Current Standards Activities page at standardsactivities.csa.ca.

- 5) *This Standard is subject to review within five years from the date of publication. Suggestions for its improvement will be referred to the appropriate committee. To submit a proposal for change, please send the following information to inquiries@csagroup.org and include “Proposal for change” in the subject line:*
 - a) *Standard designation (number);*
 - b) *relevant clause, table, and/or figure number;*
 - c) *wording of the proposed change; and*
 - d) *rationale for the change.*

C22.2 No. 301-16

Industrial electrical machinery

0 Introduction

This Standard is intended to specify the applicable electrical requirements for industrial machinery needed to satisfy the electrical installation codes and practices for Canada. When third-party verified and appropriately marked as meeting the requirements of this Standard, the machinery is deemed compliant for installation in a non-hazardous location in accordance with the rules of the *Canadian Electrical Code, Part I* and to be acceptable to the electrical authority having jurisdiction. This Standard is intended to be used in conjunction with the *Canadian Electrical Code, Part I* where all mandatory installation requirements for Canada are specified.

Machinery can pose many other hazards in addition to electrical hazards. As such, users of this Standard need to be aware that Canadian federal, provincial, and territorial legislation can impose other additional requirements beyond those for electrical safety and that those requirements can vary from province to province. Some of this legislation is based on the requirements in CSA Z432 that specifies the conditions for the risk assessment, design, manufacture (including remanufacture and rebuilding), installation, maintenance, operation, and safeguarding of industrial equipment to prevent injuries and accidents and to enhance the safety of personnel who operate, assemble, and maintain the machinery. This Standard should be used in conjunction with CSA Z432 to also ensure compliance with any legislated non electrical aspects of machine safety.

This Standard was written to make the requirements align themselves as much as possible with existing global machinery requirements. Any unique requirements have been added only as necessary to ensure compliance with the requirements of the *Canadian Electrical Code, Part I* and to correlate with existing Canadian practices. This Standard was structured so that the requirements align as closely as possible to the requirements of the existing IEC 60204-1 standard on safety of machinery. This was done intentionally so as to facilitate a comparison of requirements between the two documents. The requirements of this Standard were also reviewed against those of the NFPA 79 to avoid any unintentional conflict in requirements and maintain to the greatest extent possible a commonality of requirements between this Standard and existing US requirements.

1 Scope

1.1

This Standard applies to industrial electrical machinery comprising interconnected mechanical, electrical, or electronic industrial equipment operating in a coordinated manner.

1.2

This Standard applies to equipment rated at not more than 1000 V intended to be installed and used in non-hazardous locations in accordance with the rules of the *Canadian Electrical Code, Part I*.

1.3

This Standard applies to equipment that is

- a) permanently installed;

- b) mobile;
- c) relocatable; or
- d) self powered.

1.4

The industrial equipment covered by this Standard is intended for use in an ambient temperature of 0 °C to 40 °C.

1.5

This Standard does not specify additional and special requirements that can apply to electrical equipment that

- a) is intended for use in open air (i.e., outside buildings or other protective structures);
- b) will use, process, or produce potentially explosive material (for example paint or sawdust);
- c) is intended for use in potentially explosive and/or flammable atmospheres;
- d) has special risks when producing or using certain materials; and
- e) is intended for use in mines.

1.6

This Standard does not apply to portable equipment connected by a cord and plug and operated by hand as covered by CSA C22.2 No. 71.1.

1.7

This Standard does not apply to self-propelled work platforms.

1.8

This Standard does not specify additional and special requirements that can apply to electrical welding equipment within the scope of CSA C22.2 No. 60 or CSA/CAN E60974-1.

1.9

This Standard may be used to supplement but does not replace requirements that already exist in a published CSA component standard.

1.10

In this Standard, “shall” is used to express a requirement, i.e., a provision that the user is obliged to satisfy in order to comply with the Standard; “should” is used to express a recommendation or that which is advised but not required; and “may” is used to express an option or that which is permissible within the limits of the Standard.

Notes accompanying clauses do not include requirements or alternative requirements; the purpose of a note accompanying a clause is to separate from the text explanatory or informative material.

Notes to tables and figures are considered part of the table or figure and may be written as requirements.

Annexes are designated normative (mandatory) or informative (non-mandatory) to define their application.