

Electrical rigid metal conduit — Steel



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CSA C22.2 No. 45.1:22 November 2022

Title: *Electrical rigid metal conduit — Steel*

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CS 29.120.10

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Standard for Safety for Electrical Rigid Metal Conduit – Steel

Third Edition, Dated November 28, 2022

Summary of Topics

This new edition dated November 28, 2022 includes the following:

- Updated references in Annex [A](#)***
- Correction of typo in the measurement for length in millimeters; [5.5.2](#)***
- Introduction of a range for specific gravity of copper sulfate solution; [6.2.2.1](#)***



Association of Standardization and Certification
NMX-J-534-ANCE-2022
Third Edition



CSA Group
CSA C22.2 No. 45.1:22
Third Edition



Underwriters Laboratories Inc.
UL 6
Fifteenth Edition

Electrical Rigid Metal Conduit – Steel

November 28, 2022



Commitment for Amendments

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Preface

This is the harmonized ANCE, CSA Group, and UL standard for Electrical Rigid Metal Conduit – Steel. It is the third edition of NMX-J-534-ANCE, the third edition of CSA C22.2 No. 45.1, and the fifteenth edition of UL 6. This edition of NMX-J-534-ANCE supersedes the previous edition published 2019. This edition of CSA C22.2 No. 45.1 supersedes the previous edition published 2007. This edition of UL 6 supersedes the previous edition published 2019.

This harmonized standard was prepared by the Association of Standardization and Certification (ANCE), CSA Group, and Underwriters Laboratories Inc. (UL). The efforts and support of the conduit manufacturing industry and the Technical Harmonization Subcommittee for Conduit and Tubing of the Council of the Harmonization of Electrotechnical Standards for the Nations of the Americas (CANENA) are gratefully acknowledged.

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

The present Mexican standard was developed by CT Technical Committee 23 Electrical Accessories from the Comité de Normalización de la Asociación de Normalización y Certificación, A.C., CONANCE, with the collaboration of the metal conduit and tubing manufacturers and users.

This standard was reviewed by the CSA Subcommittee on Metal Conduit and Tubing, under the jurisdiction of the CSA Technical Committee on Wiring Products and the CSA Strategic Steering Committee on Requirements for Electrical Safety, and has been formally approved by the CSA Technical Committee. This standard has been developed in compliance with the Standards Council of Canada requirements for National Standards of Canada. It has been published as a National Standard of Canada by CSA Group.

Application of Standard

Where reference is made to a specific number of samples to be tested, the specified number is to be considered a minimum quantity.

Note: 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.

Level of harmonization

This standard uses an IEC format, but is not based on, nor is it to be considered an IEC standard.

This standard is published as an equivalent standard for ANCE, CSA Group, and UL.

An equivalent standard is a standard that is substantially the same in technical content, except as follows: Technical national differences are allowed for codes and governmental regulations as well as those recognized as being in accordance with NAFTA Article 905, for example, because of fundamental climatic, geographical, technological, or infrastructural factors, scientific justification, or the level of protection that the country considers appropriate. Presentation is word for word except for editorial changes.

Reasons for differences from IEC

The Technical Harmonization Subcommittee identified several IEC standards that address electrical conduit and tubing included in the scope of this standard. The IEC standards for electrical conduit and tubing are recognized as being generally system-specific, containing the requirements for the relevant conduits and cables and associated fittings in several discrete IEC standards.

The THSC determined the safe use of electrical conduit and tubing is dependent on the design and performance of the conduit and tubing systems with which they are intended to be installed. Significant investigation is required to assess safety and system compatibility issues that may lead to harmonization of traditional North American electrical conduit and tubing and associated fittings with those presently addressed in the known IEC standards. The THSC agreed such future investigation might be facilitated by completion of harmonization of the North American standards for electrical conduit and tubing and their fittings.

Interpretations

The interpretation by the standards development organization of an identical or equivalent standard is based on the literal text to determine compliance with the standard in accordance with the procedural rules of the standards development organization. If more than one interpretation of the literal text has been identified, a revision is to be proposed as soon as possible to each of the standards development organizations to more accurately reflect the intent.

Electrical Rigid Metal Conduit – Steel

1 Scope

1.1 These requirements cover electrical rigid metal conduit – steel (ERMC-S), elbows, couplings, and nipples for use as a metal raceway for installation of wires and cables in accordance with CSA C22.1, Canadian Electrical Code, Part I, NOM-001-SEDE, Standard for Electrical Installations, and NFPA 70, National Electrical Code (see Reference Item No. 1, Annex [A](#)). ERMC-S is provided with a zinc, zinc-based, nonmetallic, or other alternate corrosion-resistant exterior coating and an organic or zinc interior coating. It is the user's responsibility to determine the appropriate product for their application.

1.2 Non-ferrous and stainless steel conduits are covered by the standards listed in Reference Item No. 2, Annex [A](#).

2 Normative References

2.1 Products covered by this standard shall comply with the referenced installation codes and standards noted in Annex [A](#) as appropriate for the country where the product is to be used. When the product is intended for use in more than one country, the product shall comply with the installation codes and standards for all countries where it is intended to be used.

2.2 For undated references to standards, such reference shall be considered to refer to the latest edition and all revisions to that edition up to the time when this standard was approved. For dated references to standards, such reference shall be considered to refer to the dated edition and all revisions published to that edition up to the time the standard was approved.

3 Definitions

3.1 The following definitions apply in this standard.

3.2 BARE THREADED TUBE – A standard length of threaded tube intended to be coated with an alternate corrosion-resistant coating and having a separate coupling.

3.3 COATING(S), ALTERNATE CORROSION-RESISTANT – A primary coating(s) other than one consisting solely of zinc, which upon evaluation has demonstrated the ability to provide the level of corrosion resistance required on the exterior of conduit. See [6.2.4](#).

Note: The coating(s) may include zinc.

3.4 COATING(S), ORGANIC – An interior coating(s), other than one consisting solely of zinc, which, upon evaluation, has demonstrated the ability to provide the level of corrosion resistance necessary where the coating is not subject to physical damage. See [6.2.3](#).

Note: The coating(s) may include zinc.

3.5 COATING(S), ZINC – A primary coating consisting solely of zinc, which upon evaluation has demonstrated the ability to provide the level of corrosion resistance required on the exterior or interior of conduit as applicable. See [6.2.2](#).

3.6 ELBOW – A manufactured curved section of ERMC-S threaded on each end.