



UL 486D

STANDARD FOR SAFETY

Sealed Wire Connector Systems

UL Standard for Safety for Sealed Wire Connector Systems, UL 486D

Seventh Edition, Dated November 30, 2023

Summary of Topics

This Seventh Edition of ANSI/UL 486D dated November 30, 2023 includes: (a) Standard Scope Clarifications; (b) Revisions to Sunlight Resistance / Salt Water Immersion; (c) Alternate Information Means in UL 486D; (d) Addition of Other Wire Types and Clarification of Testing; and (e) Miscellaneous Editorial Corrections.

The new and revised requirements are substantially in accordance with Proposal(s) on this subject dated July 14, 2023.

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This ANSI/UL Standard for Safety consists of the Seventh Edition.

The most recent designation of ANSI/UL 486D as an American National Standard (ANSI) occurred on November 30, 2023. ANSI approval for a standard does not include the Cover Page, Transmittal Pages, Title Page (front and back), or the Preface.

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PREFACE

This is the harmonized ANCE, CSA Group, and UL standard for sealed wire connector systems. It is the fourth edition of NMX-J-519-ANCE, the fourth edition of CSA C22.2 No. 198.2, and the seventh edition of UL 486D. This edition of NMX-J-519-ANCE supersedes the previous edition published in 2015. This edition of CSA C22.2 No. 198.2 supersedes the previous edition published in 2015. This edition of UL 486D supersedes the previous edition published in 2015.

This harmonized standard was prepared by the Association of Standardization and Certification (ANCE), CSA Group, and ULSE. The efforts and support of the Technical Harmonization Committee for Connectors, THC 99, of the Council on the Harmonization of Electrotechnical Standards of 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 the SC 20D – Conectores part of the CT 20 – Conductores from the Comité de Normalización de la Asociación de Normalización y Certificación, A.C., CONANCE, with the collaboration of the connectors manufacturers and users.

This standard was reviewed by the CSA Integrated Committee on Electrical Connectors, 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 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 the IEC format but is not based on, nor shall it be considered equivalent to, an IEC standard.

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

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

At present there is no IEC standard for sealed wire connector systems. Therefore, this standard does not employ any IEC standard for base requirements.

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.

1 Scope

1.1 The requirements in this standard cover sealed wire connector systems, including insulating caps, covers, resins, tubing, and tapes provided with, or for use with, specific wire connectors. These systems are intended for wet or damp locations and other installations such as:

- a) Direct burial,
- b) Below grade,
- c) Above grade where exposed to sunlight; or
- d) Where exposed to sea water or salt water.

The wire connectors covered by these requirements are intended for use with copper conductor, aluminum conductor, or both in accordance with installations covered by the National Electrical Code, NFPA 70; CSA C22.1, Canadian Electrical Code, Part I; and NOM 001 SEDE, Standard for Electrical Installations.

1.2 These requirements apply to sealed wire connector systems intended for use at 1500 V or less, with currents not exceeding the ampacity of insulated conductor types noted below, rated either 75 °C (167 °F) or 90 °C (194 °F):

- a) 14 AWG (2.08 mm²) through 2,000 kcmil (1,012 mm²) conductors: Types RHW, RHW-2, USE, USE-2, USEB90, USEI75, USEI90, THW, XHHW, XHHW-2, RW90 EP, RW90 XLPE, or TWU,
- b) 30 AWG (0.05 mm²) through 16 AWG (1.31 mm²) conductors: Any Type insulation acceptable for direct burial, below grade use, or wet locations.

1.3 These requirements also cover sealed wire connector systems intended for use with single or multiple conductor underground feeder cable, golf course sprinkler cable, underground low energy cable, irrigation cable, or other cable with insulation acceptable for direct burial, below grade use, or wet locations.

1.4 This standard does not apply to twist-on style splicing sealed wire connectors.

2 Referenced Publications

2.1 Products covered by this standard shall comply with the reference installation codes and standard 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 Where reference is made to any Standards, such reference shall be considered to refer to the latest editions and revisions thereto available at the time of printing, unless otherwise specified.

Note: For products intended for use in Canada, general requirements are given in CSA C22.2 No. 0.

ANSI C119.1, *American Standard for Electric Connectors – Sealed Insulated Underground Connector Systems Rated 600 Volts*

ASTM G21, *Standard Practice for Determining Resistance of Synthetic Polymeric Materials to Fungi*

ASTM G151, *Standard Practice for Exposing Nonmetallic Materials in Accelerated Test Devices that Use Laboratory Light Sources*