C22.2 No. 188-18
National Standard of Canada

Splicing wire connectors

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Splicing Wire Connectors

January 26, 2018

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Commitment for Amendments

This standard is issued jointly by the Association of Standardization and Certification (ANCE), the Canadian Standards Association (operating as "CSA Group"), and Underwriters Laboratories Inc. (UL). Comments or proposals for revisions on any part of the standard may be submitted to ANCE, CSA Group, or UL at anytime. Revisions to this standard will be made only after processing according to the standards development procedures of ANCE, CSA Group, and UL. CSA Group and UL will issue revisions to this standard by means of a new edition or revised or additional pages bearing their date of issue. ANCE will incorporate the same revisions into a new edition of the standard bearing the same date of issue as the CSA Group and UL pages.

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This ANSI/UL Standard for Safety consists of the Seventh Edition. The most recent designation of ANSI/UL 486C as an American National Standard (ANSI) occurred on January 26, 2018. ANSI approval for a standard does not include the Cover Page, Transmittal Pages, Title Page (front and back), or the Preface.

The Department of Defense (DoD) has adopted UL 486C on January 28, 1992. The publication of revised pages or a new edition of this Standard will not invalidate the DoD adoption.

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CONTENTS

Preface

This is the harmonized ANCE, CSA Group, and UL standard for Splicing Wire Connectors. It is the fourth edition of NMX-J-548-ANCE, the fourth edition of CSA C22.2 No. 188, and the seventh edition of UL 486C. This harmonized standard has been jointly revised on January 20, 2016.

This harmonized standard was prepared by the Association of Standardization and Certification (ANCE), the CSA Group, and Underwriters Laboratories Inc. (UL). The efforts and support of the Technical Harmonization Committee for Connectors, 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 - Conectadores part of the CT 20 - Conductores from the Comite de Normalizacion de la Asociacion de Normalizacion y Certificacion, 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.

This standard has been approved by the American National Standards Institute (ANSI) as an American National Standard.

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 is it to be considered equivalent to, 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 Committee identified several IEC standards that address electrical wire connectors included in the scope of this standard. The IEC standards for electrical wire connectors are recognized as being generally system-specific, containing the requirements for the relevant wire connectors and cables in many discrete IEC standards.

The THC determined the safe use of electrical wire connectors is dependent on the design and performance of the wire connectors in relation to the North American electrical codes with which they are intended to be installed. The THC agreed such future investigation would be facilitated by the harmonization of the North American electrical codes for wire connectors with IEC installation practices.

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 This Standard applies to single-polarity, hand-, or tool-applied splicing wire and cable connectors intended for use with all alloys of copper, aluminum conductors, or copper-clad aluminum conductors, or all three, in accordance with the *Canadian Electrical Code Part I*, C22.1, in Canada, the *National Electrical Code*, NFPA-70, in the United States of America, or the *Standard for Electrical Installations*, NOM-001-SEDE, in Mexico, as follows:

Note: Copper-clad aluminum conductors are for use only in the United States in accordance with the National Electrical Code, NFPA 70.

a) Connectors intended to hold two or more conductor(s);

b) Connectors intended for use in appliances and equipment that comply with the requirements for such appliances and equipment;

c) Connectors intended for use with 6 AWG (13.3 mm^2) or smaller conductors;

d) Uninsulated connectors that are used in circuits rated 8 000 V and less; and

e) Connectors intended for use in air-handling spaces.

Note: Examples of splicing wire connectors include twist-on connectors, insulation-piercing or displacement connectors, spring-action connectors, tool-applied crimp, mechanical set-screw connectors, etc.

1.2 This Standard is intended for splicing wire connectors suitable for use with conductors in the size ranges as follows:

a) Aluminum:

1) 12 AWG (3.3 mm^2) and 10 AWG (5.3 mm^2) solid;

2) 12 AWG (3.3 mm^2) to 6 AWG (13.3 mm^2) stranded, Class B concentric, compressed, and compact; and

3) 12 AWG (3.3 mm^2) to 6 AWG (13.3 mm^2) stranded single input wire (SIW).

In Mexico, the use of aluminum conductors is permitted only with thermoset insulation and for sizes of 6 AWG (13.3 mm^2) and higher.

b) Copper-clad aluminum:

1) In Canada, this construction is not allowed.

2) In Mexico, this construction is not allowed.

3) In the United States:

i) 12 AWG (3.3 mm^2) and 10 AWG (5.3 mm^2) solid; and

ii) 12 AWG (3.3 mm^2) to 6 AWG (13.3 mm^2) stranded, Class B concentric, compressed, and Class C concentric.