



Mechanical protection tubing (MPT) and fittings



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and fittings



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Preface

This is the harmonized CSA Group and UL standard for mechanical protection tubing (MPT) and fittings. It is the fourth edition of CSA C22.2 No. 227.3, and the second edition of UL 1696. This edition of CSA C22.2 No. 227.3 supersedes the previous edition of CSA C22.2 No. 227.3 published on March 18, 2005. This edition of UL 1696 supersedes the first edition of UL 1696 published on March 18, 2005. Previously, requirements for MPT were found in the common CSA and UL Standard for Nonmetallic Mechanical Protection Tubing (NMPT) and UL 1696A, Outline of Investigation for Mechanical Protection Tubing.

This harmonized standard was prepared by CSA Group and Underwriters Laboratories Inc. (UL). The efforts and support of the conduit manufacturing industry and the Technical Harmonization Committee 23A, NMPT Working Group, of the Council on 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.

This standard was reviewed by the CSA Integrated Committee on Nonmetallic Conduit, Tubing, and Fittings, 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 approved by the American National Standards Institute 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 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 CSA Group and UL. An equivalent standard is a standard that is substantially the same in technical content, except as follows: Technical deviations are allowed for codes and governmental regulations and 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 to be word for word except for editorial changes.

Reasons for Differences from IEC

The Technical Harmonization Committee determined the safe use of nonmetallic mechanical protection tubing and fittings is dependent on the design and performance of the raceway and cable 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 nonmetallic tubing and fittings with those presently addressed in the known IEC standards. The THC agreed such future investigation might be facilitated by completion of harmonization of the North American standards for mechanical protection tubing and 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.

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A UL effective date is established by Underwriters Laboratories Inc. and is not part of the ANSI approved standard.

Mechanical Protection Tubing (MPT) and Fittings

1 Scope

1.1 This Standard applies to nonmetallic or composite mechanical protection tubing (MPT), and nonmetallic, composite or metallic fittings, and clamps used for the support, routing and mechanical protection of conductors, wires, and cables. The MPT, fittings, and clamps are intended to be used to interconnect separate component assemblies or consoles of electrical devices, such as robotics, medical or X-ray equipment. The mechanical protection afforded the internal wiring contained within the tubing is considered equivalent to the protection provided by a type SJT flexible cord. Mechanical protection tubing (MPT) may be submitted without fittings, clamps, etc.

1.2 The MPT, fittings, and clamps covered by this Standard are not intended for use as a wiring method in accordance with NFPA 70, National Electrical Code (NEC) and CSA C22.1-12, Canadian Electrical Code (CE Code), Part I.

1.3 This Standard does not include standard trade sizes. The MPT, fittings, and clamps from different manufacturers are not interchangeable unless the combination of MPT, fittings, and clamps are determined to be in accordance with this Standard.

2 Normative References

2.1 Where reference is made to other publications, such reference shall be considered to refer to the latest edition and all amendments published to that edition up to the time when this Standard was approved.

ASTM* Standards

ASTM D 2444

Standard Test Method for Determination of the Impact Resistance of Thermoplastic Pipe and Fittings by Means of a Tup (Falling Weight)

ASTM D 5025

Standard Specification for Laboratory Burner Used for Small-Scale Burning Tests on Plastic Materials

ASTM D 5207

Standard Practice for Calibration of 20 and 125 mm Test Flames for Small-Scale Burning Tests on Plastic Materials

ASTM D 5423

Standard Specification for Forced – Convection Laboratory Ovens for Evaluation of Electrical Insulation

ASTM G 155

Standard Practice for Operating Xenon Arc Light Apparatus for Exposure for Nonmetallic Materials

CSA Group Standards

C22.1-12

Canadian Electrical Code (CE Code), Part I

CAN/CSA-C22.2 No. 0-10

General requirements – Canadian Electrical Code, Part II