



UL 1565

STANDARD FOR SAFETY

Positioning Devices

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UL Standard for Safety for Positioning Devices, UL 1565

Fifth Edition, Dated January 25, 2013

SUMMARY OF TOPICS

This new edition of ANSI/UL 1565 includes changes to the scope of the standard due to the removal of the requirements for cable tie and cable tie accessories.

The new requirements are substantially in accordance with Proposal(s) on this subject dated September 28, 2012.

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The following table lists the future effective dates with the corresponding reference.

Future Effective Date	Reference
June 1, 2014	Entire Standard





CSA Group
CSA C22.2 No. 18.5-13
Second Edition



Underwriters Laboratories Inc.
UL 1565
Fifth Edition

Positioning Devices

January 25, 2013



ANSI/UL 1565-2013

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This Standard is subject to periodic review, and suggestions for its improvement will be referred to the appropriate committee. To submit a proposal for change, please send the following information to inquires@csagroup.org and include "Proposal for change" in the subject line: Standard designation (number); relevant clause, table, and/or figure number; wording of the proposed change; and rationale for the change.

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This ANSI/UL Standard for Safety consists of the Fifth Edition. The most recent designation of ANSI/UL 1565 as an American National Standard (ANSI) occurred on January 23, 2013. 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 CSA Group and UL Standard for Positioning Devices. It is the second edition of CSA C22.2 No. 18.5, and the fifth edition of UL 1565. This edition of CSA-C22.2 No. 18.5 supersedes the previous edition published in 2002. This edition of UL 1565 supersedes the previous edition published in 2002.

This harmonized Standard was prepared by Underwriters Laboratories and CSA Group. The efforts and support of the members of the Technical Harmonization Committee, which includes end product manufacturers and material suppliers, 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 Technical Subcommittee on ICCM03-Fittings, Hardware and Positioning Devices, under the jurisdiction of the Technical Committee on Wiring Products, and has been formally approved by the Technical Committee.

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

Where reference is made to a specific number of samples to be tested, the specified number is 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 is published as an equivalent standard for CSA 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 word for word except for editorial changes.

Interpretations

The interpretation by the SDO (Standards Development Organization) of an equivalent standard shall be based on the literal text to determine compliance with the standard in accordance with the procedural rules of the SDO. If more than one interpretation of the literal text has been identified, a revision shall be proposed as soon as possible to each of the SDOs to more accurately reflect the intent.

CSA Group effective date

The effective date for CSA Group will be announced through CSA Informs or a CSA Group certification notice.

UL effective date

As of June 1, 2014, all products Listed or Recognized by UL must comply with the requirements in this standard.

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Between January 25, 2013 and June 1, 2014, new product submittals to UL may be evaluated under all requirements in this standard or, if requested in writing, evaluated under presently effective requirements only. The presently effective requirements are contained in the fourth edition of UL 1565.

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



1 Scope

1.1 This standard applies to those metallic and nonmetallic devices used for positioning – which may include bundling and securing – or to a limited extent supporting cable, wire, conduit, or tubing of a wiring system in electrical installations, to reduce the risk of fire, electric shock, or injury to persons. This standard applies to, but is not limited to, cable clamps, cable and conduit clips, and non-raceway wiring ducts.

1.2 These requirements do not apply to cable ties or cable tie accessories, coated electrical sleeving, extruded insulating tubing, metallic or nonmetallic raceways or woven flexible nonmetallic tubing (fiber loom) employed as mechanical protection for insulated wires or equipment covered by other standards or requirements.

Note 1: Cable ties and cable tie accessories are covered in the Standard for Cable Ties for Electrical Installations, CAN/CSA-C22.2 No. 62275 or UL 62275.

Note 2: Nonmetallic Mechanical Protective Tubing (NMPT) is covered in the Standard for Nonmetallic Mechanical Protective Tubing (NMPT), CSA C22.2 No. 227.3 or UL 1696.

1.3 These requirements do not apply to any mechanical protection or electrical insulation that is provided by these devices.

1.4 These requirements do not apply to hardware for the support of conduit, tubing, and cable from a building structure, such as hangers, staples, straps, and similar devices for installation in accordance with the National Electrical Code, NFPA 70, and the Canadian Electrical Code (CE Code) Part I.

Note: Hardware for the support of conduit, tubing, and cable from a building structure such as hangers, staples, straps, and similar devices for installation in accordance with the National Electrical Code, NFPA 70, and the Canadian Electrical Code (CE Code) Part I are covered in the Standard for Hardware for the Support of Conduit, Tubing, and Cable, CSA C22.2 No. 18.4 or UL 2239.

1.5 In Canada, the requirements in this standard generally address class of workmanship in accordance with the Canadian Electrical Code (CE Code) Part 1, and where applicable, minor combustible components in the National Building Code of Canada.

2 Dated and undated references

2.1 For undated references to Standards, such references shall be considered to refer to the latest edition and all amendments to that edition up to the time when this Standard was approved. For dated references to Standards, such references shall be considered to refer to the dated edition and all amendments published up to the time the Standard was approved.

3 Normative references

CSA Group Standards

C22.1-12

Canadian Electrical Code, Part I

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

General Requirements – Canadian Electrical Code, Part II

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CAN/CSA-C22.2 No. 0.17-00
Evaluation of Properties of Polymeric Materials

C22.2 No. 18.4-04
Hardware for the Support of Conduit, Tubing, and Cable

UL Standards

UL 746B
Polymeric Materials – Long Term Property Evaluations

UL 2239
Hardware for the Support of Conduit, Tubing, and Cable

ASTM Standards

ASTM B117-97
Standard Practice for Operating Salt-Spray (Fog) Apparatus

IEC Standards

IEC 60216-4-1 (2006)
Guide for the Determination of Thermal Endurance Properties of Electrical Insulating Materials – Part 4: Aging Ovens Section One: Single Chamber Ovens (Third Edition)

IEC 60695-11-10 (2003)
Fire Hazard Testing – Part 11-10: Test Flames – 50 W Horizontal and Vertical Flame Test Methods. (First Edition)

National Research Council of Canada Publication

National Building Code of Canada – 2011

NFPA Publication

National Electrical Code (NEC®)
ANSI/NFPA 70-2011

4 Definitions

4.1 For the purpose of this Standard, the following definitions apply to the use of positioning devices described in Clause 1, Scope.

4.2 AIR HANDLING SPACES – Ducts or plenums used for environmental air and other spaces used for environmental air, such as above hung ceilings or below raised floors. This does not include plenums used for the removal of dust, loose stock, or vapor, or for ventilation of commercial-type cooking equipment.

4.3 CLAMP – A device, other than a tie, used for positioning or to a limited extent supporting wire, cable, conduit or tubing, or binding groups of wires or cables by gripping them together. A clamp can also secure or position the bound wires or cables to a surface or frame.

4.4 COMPOSITE DEVICE – A device comprised of both metallic and non-metallic materials.

4.5 CABLE TIE – A band or length of material, employing a locking device, used for bundling or tying groups of cables together, securing, and/or supporting the cables. A hook and loop type tie is considered to be a cable tie.

Note: Cable ties are not within the scope of this Standard, as noted in 1.2. This definition is provided as a point of reference.

4.6 DUCT – A non-raceway device that typically consists of a main channel body and closure lid, that provides continuous support for wire or cable, and that is intended to be contained within another enclosure.

4.7 LIMITED SUPPORT – Able to provide support for a non-flexible conduit or tubing only up to the maximum load rating indicated (per device). The devices are not intended to provide primary support for non-flexible conduit or tubing at the maximum spacing intervals specified in the National Electrical Code, NFPA 70, and the Canadian Electrical Code, Part 1.

5 Classification

5.1 For the purposes of this Standard, positioning devices are classified according to the characteristics specified in 5.2 – 5.5.

5.2 Positioning devices are classified according to material:

- a) Metallic;
- b) Polymeric (non metallic); or
- c) Composite (polymeric with a metallic component).

5.3 Positioning devices tested according to Clause 14, Mechanical Strength Test Method, are classified by mechanical strength as follows:

- a) No load rating
- b) 3 kg (6.6 lbs)
- c) 5 kg (11 lbs)
- d) 7 kg (15 lbs)
- e) 9 kg (20 lbs)
- f) 11 kg (25 lbs)
- g) 18 kg (40 lbs)
- h) 23 kg (50 lbs)
- i) 34 kg (75 lbs)

For ratings greater than 34 kg (75 lbs), additional values in increments of 11 kg (25 lbs) are also acceptable.

Note: Mechanical strength is typically expressed as the load rating.

5.4 Positioning devices are classified according to the maximum temperature for application (°C), such as:

- a) 50°C
- b) 60°C
- c) 65°C
- d) 75°C
- e) 85°C
- f) 105°C
- g) 120°C
- h) 150°C (aluminum)
- i) 250°C
- j) 300°C (steel)

Note: Use of these ratings is recommended. Additional ratings in 5 degree increments are also acceptable.

5.5 Positioning devices are classified according to the application environment:

- a) Indoors;
- b) Indoors only, and in air handling spaces;
- c) Outdoors (weather resistant);
- d) Within equipment and indoor only; and
- e) Within equipment and outdoor (weather resistant).

6 General requirements

6.1 A positioning device shall be capable of operating as intended.

6.2 A positioning device that is self-locking or self-holding shall operate so that it will not be inadvertently released in normal use.

6.3 In Canada, a staple intended for use as a positioning device shall comply with the construction requirements in Hardware for the Support of Conduit, Tubing, and Cable, CSA C22.2 No. 18.4.

6.4 At the manufacturer's option, positioning devices of polymeric materials may be evaluated with respect to the rate of their heat and smoke release.

6.5 For products intended for use in Canada, general requirements are given in CAN/CSA-C22.2 No. 0, General Requirements – Canadian Electrical Code, Part II.

7 Marking

7.1 General

7.1.1 Unless otherwise indicated in Clause 7, all markings shall be placed on the positioning device or the smallest unit package in which the product is shipped.

7.1.2 A positioning device shall have a distinctive marking identifying the company and either the type, category, or model designation.

7.1.3 In Canada, there are two official languages, English and French. All markings required by this Standard may be in other languages to conform with the language requirements where the product is to be used.

7.1.4 A positioning device other than wiring duct whose performance is dependent upon specific maximum and minimum mounting hole size, panel thickness, screw size, mounting orientation, maximum wire, cable, bundle, or tubing size, or other assembly techniques, or special precautions for installation, shall be marked to include this information. Alternatively, with respect to 7.1.1, this marking may be provided in the installation instructions shipped with the product.

7.2 Specific markings based on classification

7.2.1 A positioning device classified according to 5.2 (b) or (c), and 5.5 (a), (b), or (c) shall be marked with the temperature rating according to 5.4. As an alternative to the marking requirement in 7.1.1, this marking may be provided in the installation instructions shipped with the product.

7.2.2 A device classified according to 5.5 (a), (b), or (c) shall have the particular mechanical strength declared by the manufacturer. The marking shall comply with 5.3 for devices tested according to the method in Clause 14, Mechanical Strength Test Method. As an alternative to the marking requirement in 7.1.1, this marking may be provided in the installation instructions shipped with the product.

7.2.3 A positioning device classified as in 5.5 (c) or (e) may be marked as follows: "For use outdoors," "For use outdoors or indoors," or an equivalent wording.

7.2.4 A positioning device classified as in 5.5(b) may be marked as follows:

- a) For devices classified as 5.2(a), "Suitable for use in Air Handling Spaces in accordance with Section 300.22 (B), (C), and (D) of the National Electrical Code, and Rules 12-010 (3), (4), and (5), and 12-020 of the Canadian Electrical Code, Part I" or an equivalent wording. Alternatively, the abbreviated marking "AH-1" shall be permitted.

b) For devices classified as 5.2 (a), (b), or (c), "Suitable for use in Air Handling Spaces in accordance with the Section 300.22 (C) and (D) of the National Electrical Code, and Rules 12-010 (3), (4), and (5), and 12-020 of the Canadian Electrical Code, Part I" or an equivalent wording. Alternatively, the abbreviated marking "AH-2" shall be permitted.

c) The word "plenum" shall be allowed in the marking in either (a) or (b); for example: "...in Air Handling Spaces (plenums)...".

Section references are to the 2012 edition of the Canadian Electrical Code and the 2011 edition of the National Electrical Code.

7.2.5 A positioning device classified as in 5.5 (d) or (e) shall be marked "For use within enclosures only" or an equivalent wording or notation that indicates this specific use.

Note: A notation may be a nationally recognized certification mark or a nationally recognized or accepted symbol.

7.2.6 A positioning device that relies upon an adhesive for securement shall be marked to include the following:

- a) Substrates accepted by investigation according to Annex A, Adhesives; and
- b) Manufacturer's recommendations for surface preparations, adhesive application temperature range, application pressure and duration, and curing time prior to loading.

As an alternative to the marking requirement in 7.1.1, this marking may be provided on the installation instructions shipped with the product.

7.2.7 A positioning device intended to provide limited support for non-flexible conduit or tubing as described in 9.3 shall be marked "FOR LIMITED SUPPORT" and indicate the size and type of conduit or tubing intended to be supported. Load ratings shall be in accordance with 5.3. As an alternative to the marking requirement in 7.1.1, this marking may be provided in the installation instructions shipped with the product.

7.2.8 A positioning device classified according to 5.5 (a), (b), or (c), and tested in accordance with Clause 14, Mechanical Strength Test Method, shall be marked "For Positioning Only", "For Limited Support", or "For Positioning and Limited Support Only", as applicable.

8 General notes on tests

8.1 Where devices are produced in a range of sizes, a range of wall thicknesses, or with any construction feature having a range of dimensional characteristics or range of number density, a test shall be conducted on samples having both extremes of the range, and the minimum performance level obtained for either extreme shall be representative of the entire range. A range of sizes that is a subset of the wider range may be used for testing when a different performance level is specified for the smaller range. A range of number density refers to the number of slots or holes per unit length.

8.2 Unless otherwise noted, prior to any testing or further conditioning, all nonmetallic and composite devices shall be pre-conditioned by exposure to a constant temperature of $23 \pm 2^{\circ}\text{C}$ ($73 \pm 4^{\circ}\text{F}$) and 50 ± 5 percent relative humidity for a time period as indicated in Table 1, Stabilization Time for Conditioning Samples.

8.3 Unless otherwise specified, the tests shall be carried out at an ambient temperature of $25 \pm 5^{\circ}\text{C}$ ($77 \pm 9^{\circ}\text{F}$) and at a relative humidity between 40 and 60 percent.

8.4 An adhesive relied upon for securement of a positioning device shall be tested in accordance with the requirements in Annex A, Adhesives.

8.5 A positioning device and its integral or separate component, the purpose of which is to secure the device to a mounting surface (such as a beam flange, drop wire, rod, or the surface of a panel or building structure), shall comply with the requirements for that device and its component.

8.6 An integral or separate component of a positioning device described in 8.5, that is dependent on the thickness of the material to which it is to be mounted or the mounting orientation, shall comply with all applicable tests when the device is assembled to the minimum and the maximum thickness of each type of mounting surface and in each intended mounting orientation.

9 Mechanical strength requirements

9.1 The mechanical strength of a positioning device shall be determined through tests under static or increasing loads.

9.2 A positioning device as classified in 5.5 (a), (b), or (c) shall maintain 100 percent of the manufacturer's declared mechanical strength for 1 minute when tested as specified in Clause 14, Mechanical Strength Test Method. The tests shall be conducted on specimens both in the pre-conditioned state and after exposure to each of the appropriate conditionings described in Clause 16, Environmental Conditioning.

9.3 A positioning device as classified in 5.5 (a), (b), or (c) that is intended to provide limited support for non-flexible conduit or tubing, shall maintain three times the manufacturer's rated mechanical strength (load rating) for five minutes without slipping after taking an initial set when tested as specified in Clause 14, Mechanical Strength Test Method.

9.4 A positioning device as classified in 5.5 (a), (b), or (c) that has a manufacturer's rated mechanical strength (load rating) "No load rating" in accordance with 5.3, is not required to be tested to Clause 14, Mechanical Strength Test Method.

9.5 A positioning device as classified in 5.5 (d) or (e), other than a wiring duct, after exposure to each of the appropriate conditionings described in Clause 16, Environmental Conditioning, shall retain at least 50 percent of the mean mechanical strength of the sample set as measured in the pre-conditioned state when tested as described in Clause 14, Mechanical Strength Test Method.

9.6 Positioning devices specified in 9.5 shall be tested to failure. The recorded mechanical strength at failure for each sample in the pre-conditioned state shall be at least the mechanical strength declared by the manufacturer (see 5.3).