UL 4248-11

STANDARD FOR SAFETY

Fuseholders – Part 11: Type C (Edison Base) and Type S Plug Fuse

UL Standard for Safety for Fuseholders – Part 11: Type C (Edison Base) and Type S Plug Fuse, UL 4248-11

First Edition, Dated February 28, 2007

Summary of Topics

This revision to ANSI/UL 4248-11, Standard for Safety for Fuseholders – Part 11: Type C (Edison Base) and Type S Plug Fuse, is being issued to reaffirm approval as an American National Standard. No changes in requirements are involved.

Text that has been changed in any manner or impacted by UL's electronic publishing system is marked with a vertical line in the margin.

The editorial reaffirmation updates are substantially in accordance with Proposal(s) on this subject dated February 16, 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 any time. 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 Standard is subject to review five years from the date of publication, 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 First Edition including revisions through April 4, 2018.

The most recent designation of ANSI/UL 4248-11 as a Reaffirmed American National Standard (ANS) occurred on April 4, 2018. ANSI approval for a standard does not include the Cover Page, Transmittal Pages, Title Page (front and back), or the Preface.

Comments or proposals for revisions on any part of the Standard may be submitted to UL at any time. Proposals should be submitted via a Proposal Request in UL's On-Line Collaborative Standards Development System (CSDS) at https://csds.ul.com.

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PREFACE

This is the common ANCE, CSA Group, and UL standard for Fuseholders – Part 11: Type C (Edison Base) and Type S Plug Fuse. It is the first edition of NMX-J-009/4248/11-ANCE, the first edition of CSA C22.2 No. 4248-11, and the first edition of UL 4248-11.

This common standard was prepared by the Association of Standardization and Certification (ANCE), CSA Group, and Underwriters Laboratories Inc. (UL). The efforts and support of the CANENA Technical Harmonization Subcommittee 32B – Fuseholders are gratefully appreciated.

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

This standard was reviewed by the CSA Subcommittee on Low voltage fuses, under the jurisdiction of the CSA Technical Committee on Industrial Products and the CSA Strategic Steering Committee on Requirements for Electrical Safety, and has been formally approved by the CSA Technical Committee.

This standard will be submitted to the Standards Council of Canada for approval as a National Standard of Canada.

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

A UL standard is current only if it incorporates the most recently adopted revisions, all of which are itemized on the transmittal notice that accompanies the latest set of revised requirements.

Where reference is made to a specific number of samples to be tested, the specified number shall 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 is published as an identical standard for ANCE, CSA Group, and UL.

An identical standard is a standard that is exactly the same in technical content except for national differences resulting from conflicts in codes and governmental regulations. Presentation is word for word except for editorial changes.

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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Fuseholders – Part 11: Type C (Edison Base) and Type S Plug Fuse

1 General

This Part is intended to be read together with the Standard for Fuseholders – Part 1: General Requirements hereafter referred to as Part 1. The numbering of the Clauses in this Part corresponds to like numbered Clauses in Part 1. The requirements of Part 1 apply unless modified by this Part. For Clauses not shown below, refer to the Standard for Fuseholders – Part 1: General Requirements, NMX-J-009-4248-ANCE ♦ CSA C22.2 No. 4248.1 ♦ UL 4248-1.

1.1 Scope

1.1.2 These requirements cover:

a) fuseholders intended for use with Type C (Edison-base) and Type S Plug Fuses as described in NMX-J-009/248/11-2000-ANCE, CSA C22.2 No. 248.11, UL 248-11, Low-Voltage Fuses – Part 11: Plug Fuses;

b) devices intended to be added to Edison-base fuseholders to reject fuses with larger ampere ratings; and

c) devices intended to adapt Type S plug fuses for use in Edison-base fuseholders.

4 Classification

4.1 Plug fuse fuseholders have a short-circuit withstand rating of 10,000 A. Plug fuse fuseholders are rated 250 V or less, and may be of Edison-base or Type S base design.

5 Characteristics

5.1 Summary of characteristics

5.1.3 Voltage and current rating

5.1.3.1 Plug fuse fuseholders shall be rated 125, 127, or 250 V.

5.1.3.2 Plug fuse fuseholders shall be rated 15, 20, or 30 A.

5.1.4 Withstand rating

5.1.4.1 Plug fuse fuseholders shall have a short-circuit withstand rating of a 10,000 A.

6 Marking

6.1 Marking of fuseholder

6.1.1.1 In addition to the requirements of Part 1, Clauses 6.1.1.2 and 6.1.1.3 shall apply.

6.1.1.2 The marked current rating of a Type S fuseholder shall be located so that it will be plainly visible after installation.

6.1.1.3 A Type S adapter need not be marked with a withstand rating if the smallest unit package is marked ″Withstand Rating – 10,000 rms amperes when installed in an Edison-base fuseholder marked 10,000 rms amperes.″

7 Construction

7.4 Current-carrying parts

7.4.1 Except for plated No. 10 and larger wire-binding screws and nuts and stud terminals, iron or steel, plain or plated, shall not be used for parts that are depended upon to carry current. A plated iron or steel washer may be used under the center contact of an Edison-base plug fuseholder.

7.4.2 In a plug-fuseholder assembly intended for the connection of 15 A branch circuits, the ampacity of bus bars shall be as specified in Table 7.4A.

Table 7.4A
Minimum ampacity of bus bars

Total number of fuses per ungrounded bus bar[a]	Minimum ampacity		
	2-wire mains	125 – 250 V, 3-wire mains	3-phase, 4-wire mains
2	30	30	30
3	35	33	31
4	48	42	40
5	66	50	–
6	66	60	–
7 or 8	84	–	–
9 or 10	100	–	–
11 or 12	120	–	–

[a] For an assembly that has an unequal number of fuses per ungrounded bus bar, calculations shall be based on the larger number of fuses per ungrounded bus bar.

7.6 Contacts of a cartridge fuseholder

This section of Part 1 is not applicable to plug fuse fuseholders. The following requirements replace this section of Part 1.

7.6.1 Screw shells of Edison-base plug fuseholders

7.6.1.1 The thickness of the screw shell of a plug fuseholder, measured on the flat surface of the bottom of the shell, shall not be less than 0.30 mm (0.012 in).

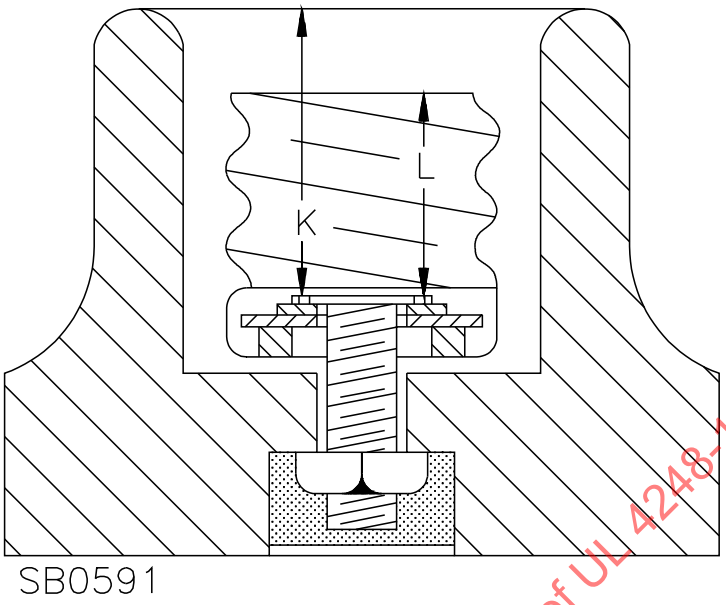
7.6.1.2 The screw shell of a plug fuseholder shall be made of copper or copper alloy. Aluminum or an aluminum alloy shall not be used.

7.6.1.3 A screw shell shall be of the medium-base size and shall, when tested with gauges made in conformity with the American National Standard Dimensions for Rolled Threads for Screw Shells of Electric Lampholders and for Screw Shells of Unassembled Lamp Bases, ANSI C81.1, go and not go as applicable.

7.6.1.4 The distance between the center contact and the plane of the edge of the insulation material surrounding the screw shell of a plug fuseholder, dimension K in Figure 7.6A, shall not be less than 19.1 mm (0.750 in) nor more than 20.6 mm (0.812 in). The distance between the center contact and the plane of the outer edge of the screw shell, dimension L, shall not be less than 14.3 mm (0.562 in) nor more than 17.5 mm (0.687 in). In a fuseholder with a spring-type center contact, the dimensions K and L shall be measured with the contact fully depressed. There shall not be fewer than two full threads in the metal screw shell beginning at the plane of the outer edge

7.6.1.5 A fuseholder may employ a female member of special design – not necessarily of the screw shell type – if it complies with the requirements in Clauses 7.6.1.3 and 8.7A, and if it has been found to be acceptable for the purpose by other appropriate tests, which may include temperature and short-circuit tests.

Figure 7.6A
Dimensions of an assembled plug fuseholder



Note: For dimensions of K and L, see Clause 7.6.1.4.

7.7 Creepage and clearance

7.7.1 Creepage and clearance spacings of a plug fuseholder shall be as specified in Table 7.7A, except spacings:

a) between adjacent screw shells of Edison-base plug fuseholders that are protected by surrounding walls of insulating material;

b) between parts of the upper-contactor rings of adjacent Type S plug fuseholders; and

c) between such screw shells or upper-contact-ring parts and a metal cover plate

shall not be less than 6.4 mm (0.250 in) if the depth of the receptacle, as measured from the top of the wall to the plane of the center contact, is not less than 19.1 mm (0.750 in).

Note: Spacings not less than 6.4 mm (0.250 in) through air and over surface from live parts to grounded dead metal are acceptable for plug fuseholders intended for use in appliances in which such spacings would comply with the requirements for the appliance involved.

Table 7.7A
Minimum acceptable spacings in a plug fuseholder

Voltage involved	Minimum spacings, mm (in) [a]		
	Between uninsulated live parts of opposite polarity		Between uninsulated live parts and grounded dead metal, through air or over surface
	Through air	Over surface	
125	12.7 (0.5)	19.1 (0.750)	12.7 (0.5)
250	19.1 (0.750)	31.8 (1.250)	12.7 (0.5)

[a] An isolated dead metal part, such as a screwhead or washer, interposed between uninsulated live parts of opposite polarity or between an uninsulated live part and grounded dead metal is considered to reduce the spacing by an amount equal to the dimension of the interposed part along the path of measurement.

7.8A Type S plug fuseholders and adapters

7.8A.1 General

7.8A.1.1 The construction of a Type S fuseholder and adapter shall be such that a fuse other than a Type S fuse cannot be used in a fuseholder or adapter intended for a Type S fuse.

7.8A.1.2 A Type S fuse rated more than 15 A shall not be usable with a Type S fuseholder or adapter rated 15 amperes.

7.8A.1.3 A Type S fuse rated more than 20 A shall not be usable with a Type S fuseholder or adapter rated 20 amperes.

7.8A.1.4 There shall be no live parts exposed when a Type S fuse and fuseholder are installed and assembled together.

7.8A.1.5 Just below the upper contact ring of a Type S fuseholder and/or adapter, there shall be a hardened-steel ring, as illustrated in Figure 7.8A, that is protected against corrosion by a metallic-plated coating. This ring shall provide approximately one complete female thread for engagement with the threaded portion of a fuse body, the pitch of the thread shall be the same as that of the threads in the molded insulating material, and the apex of the thread shall be serrated.

7.8A.1.6 A 20-ampere fuseholder and/or adapter shall incorporate a contact-rejection member such as a cup, either integral with the contact or secured under the contact, or a spacer. The dimensions of the fuseholder shall be as specified in Figure 7.8B with reference to this feature, and the cup or spacer shall be secured by means that will prevent its being readily removed.

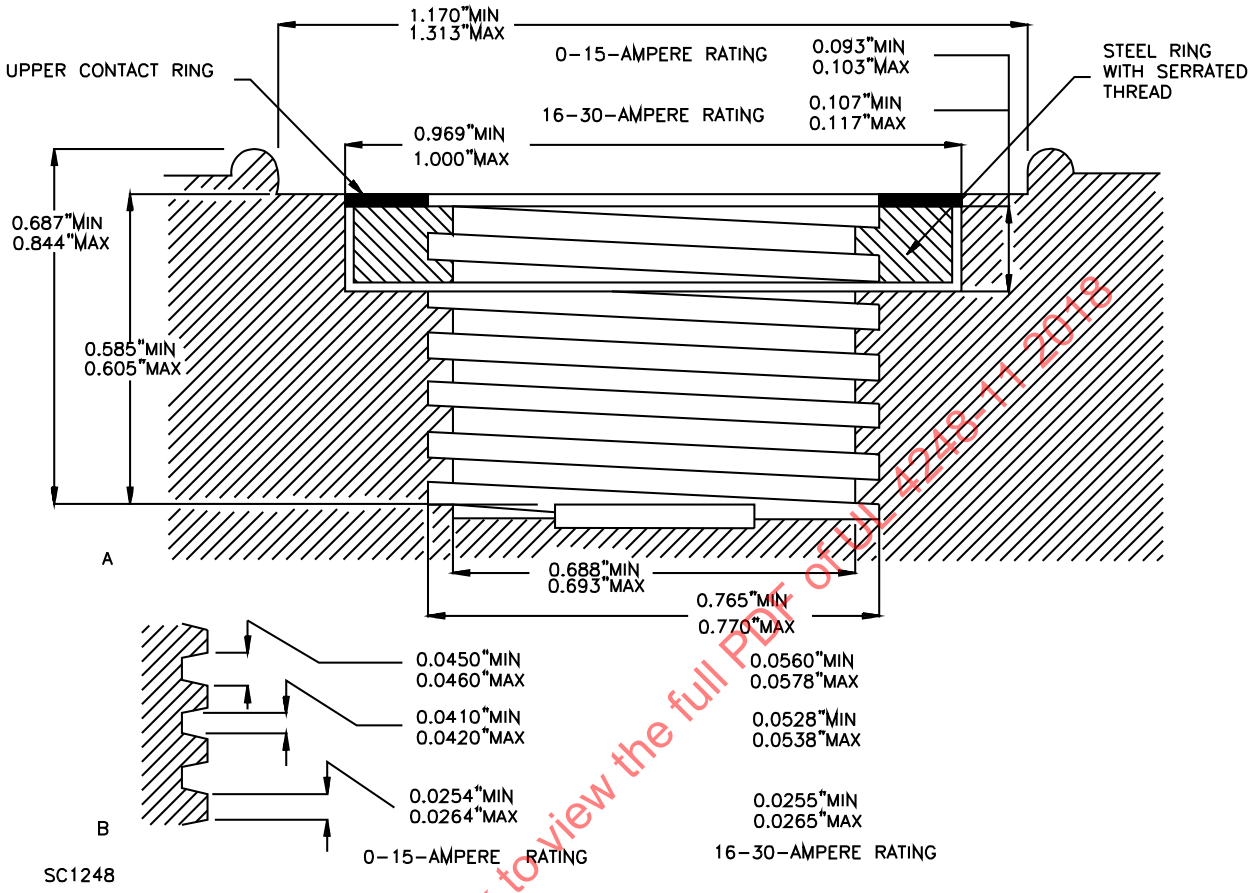
7.8A.1.7 When tested with gauges based on the dimensions given in Figure 7.8A, a Type S fuseholder and/or adapter shall “go” and “no go” as applicable. See Figure 8.4A for gauge dimensions.

7.8A.2 Fuseholders

7.8A.2.1 The dimensions of a Type S fuseholder shall be as specified in Figure 7.8A.

Figure 7.8A
Dimensions of a Type S fuseholder, mm (in)[a]

See Figure 7.8A for thread details.



A – Fuseholder

B – Details of threads

[a]Conversion Factor: 1 in = 25.4 mm

7.8A.3 Adapters

7.8A.3.1 The male screw shell of an adapter shall be formed from a copper alloy not less than 0.20 mm (0.008 in) thick.

Note: A screw shell formed from metal nominally 0.20 mm (0.008 in) thick may be thinner after forming due to commercial tolerances in the thickness of metal and the possible deformation of the metal during the forming, but the minimum thickness measured on the bottom or flat portion of the shell shall not be less than 0.165 mm (0.0065 in).

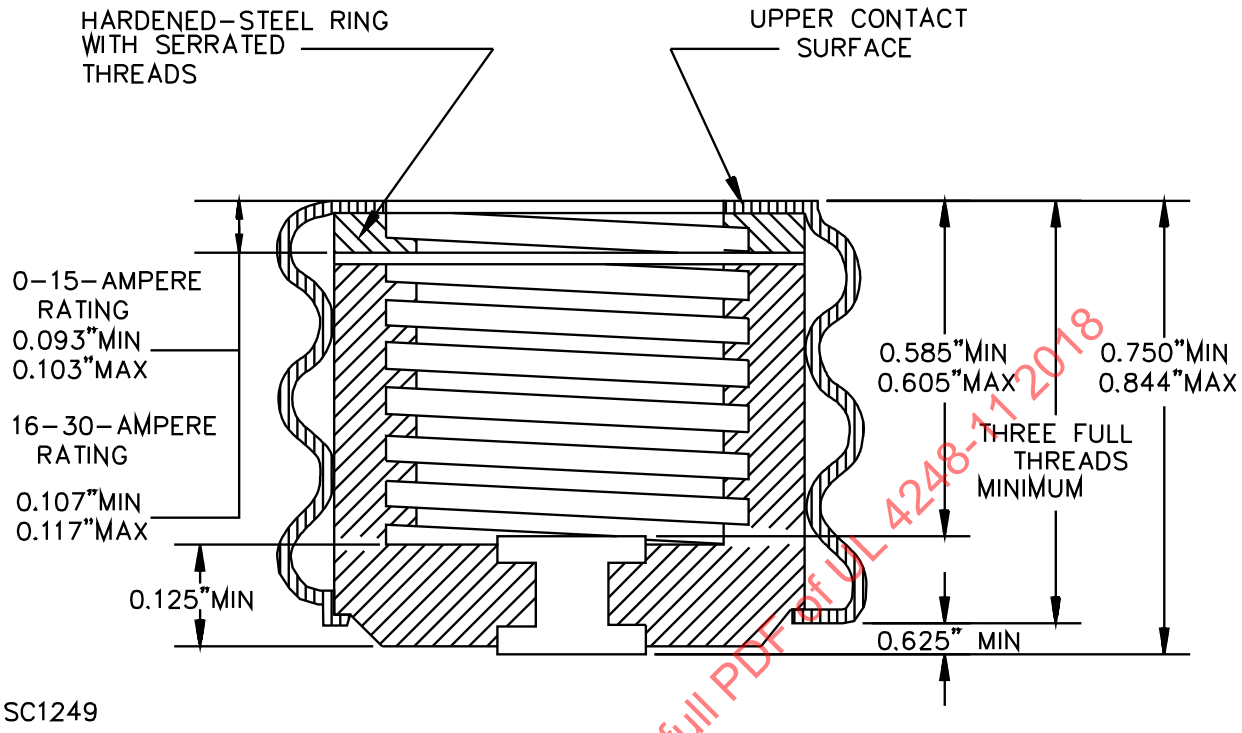
7.8A.3.2 The male screw shell shall be of the medium-base size and shall, when tested with gauges made in conformity with the ANSI C81.1, American National Standard Dimensions for Rolled Threads for Screw Shells of Electric Lampholders and for Screw Shells of Unassembled Lamp Bases, “go” and “no go” as applicable.

7.8A.3.3 A locking device provided as a part of a Type S adapter shall be designed so that the adapter cannot be removed after it has been installed in an Edison-base plug fuseholder. The design of a locking device is not specified.

7.8A.3.4 The dimensions of a Type S adapter shall be as specified in Figure 7.8B.

7.8A.3.5 The marked current rating of a Type S adapter shall be located so that it will be plainly visible after the adapter is installed in an Edison-base fuseholder.

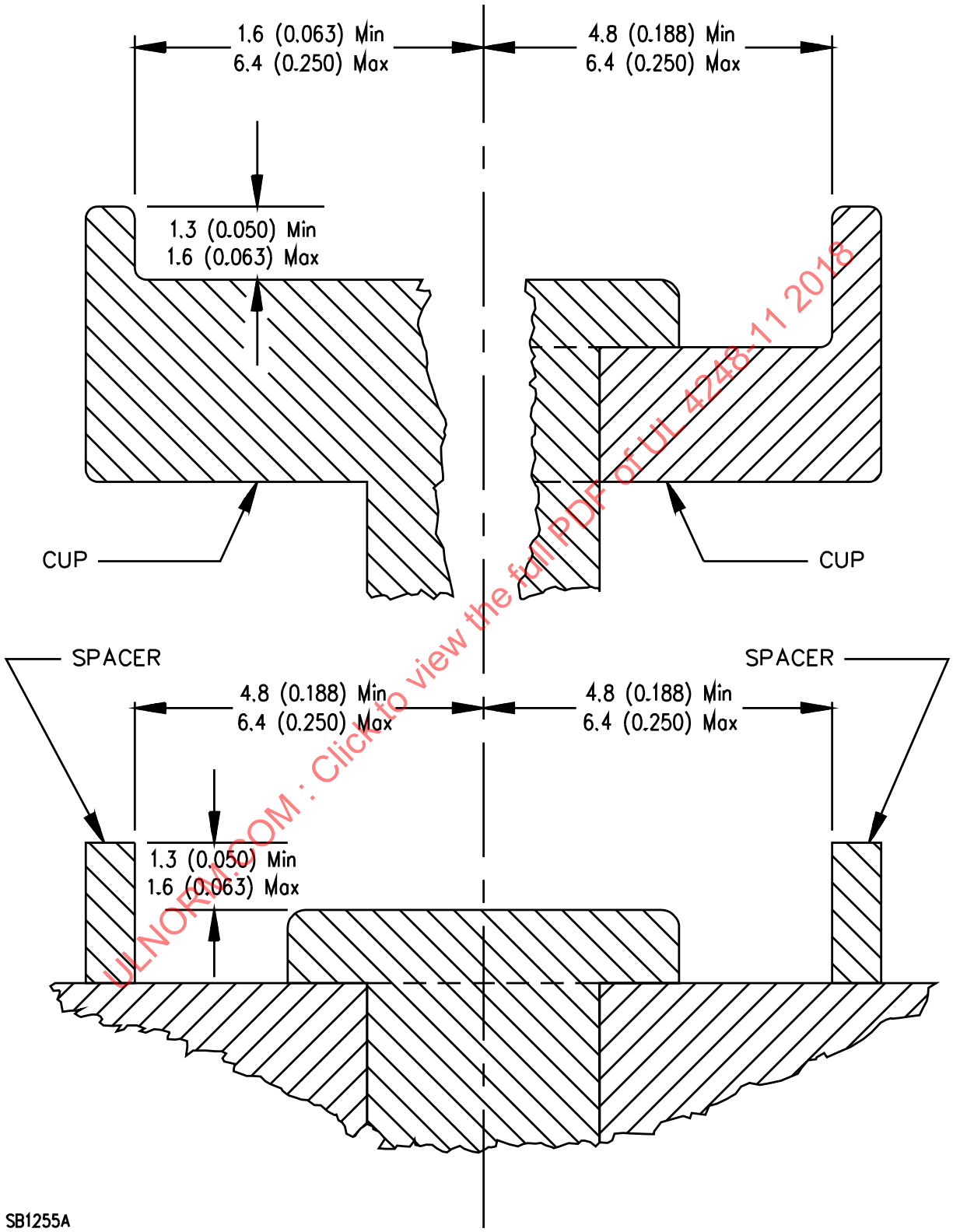
Figure 7.8B
Dimensions of a Type S adapter, mm (in)[a]



See part B of Figure 7.8A for details of thread.

[a]Conversion Factor: 1 in = 25.4 mm

Figure 7.8C
Contact-rejection cup and spacer, mm (in)



7.8A.4 Rejecters for Type C plug fuses

7.8A.4.1 The dimensions of a rejecter for a type C plug fuse shall be as specified in Figure 7.8D for the ratings of the fuse involved.

7.8A.4.2 The insulating material of a rejecter for a Type C plug fuse shall comply with Part 1, Clause 7.2.

7.8A.4.3 The rejecter for a Type C plug fuse shall have a suitable means for inserting it in the base. If holes are provided, they shall be ramped or otherwise suitably shaped to eliminate a surface for counterclockwise rotation.

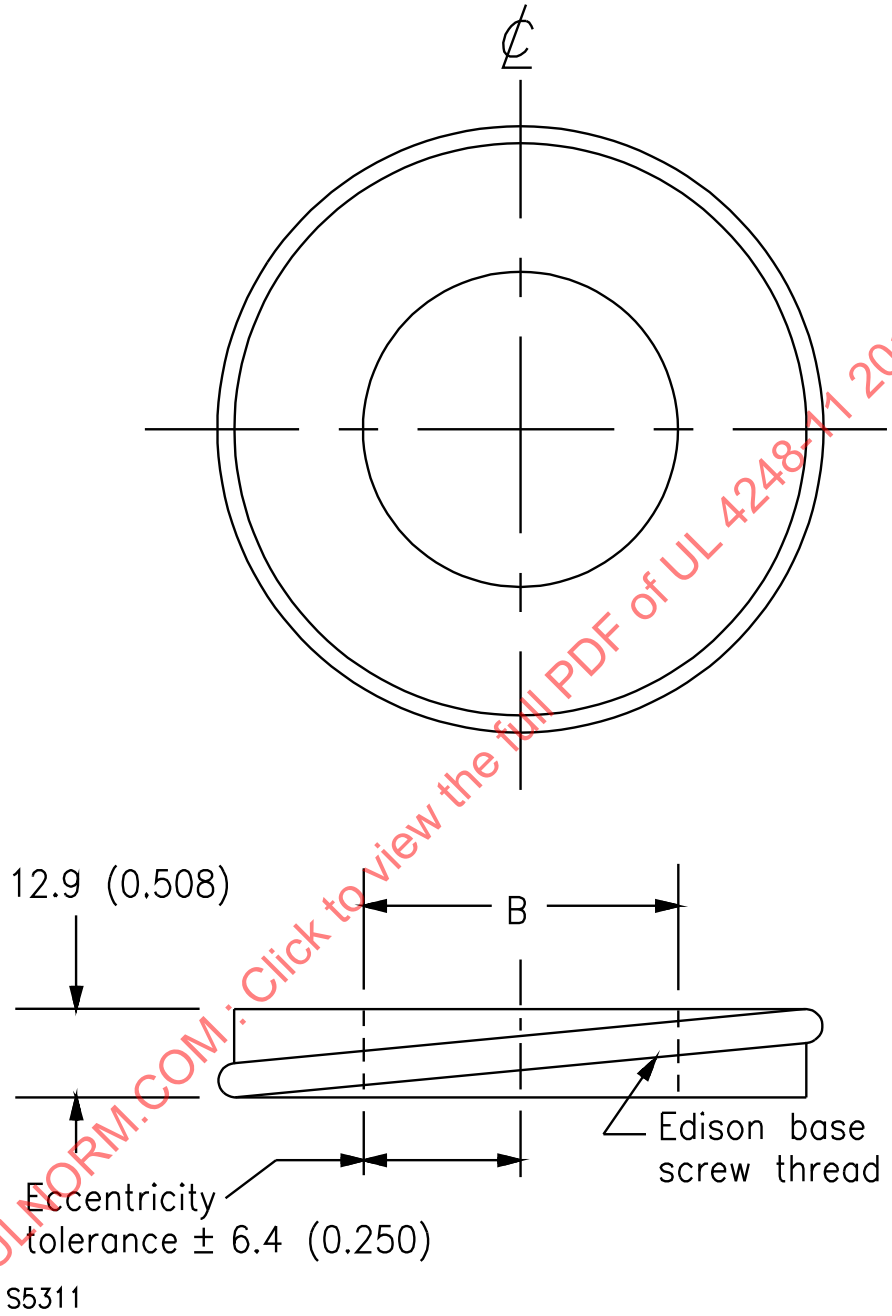
7.8A.4.4 A fuseholder having a built-in rejection feature shall:

a) properly receive a Type C plug fuse;

b) prevent a straight, circular rod, 4.7 mm (0.188 in) in diameter having a hemispherical end of 2.4 mm (0.095 in) radius from touching the screw shell (or equivalent skeleton type contact) of either the fuseholder or fuse, with the fuse in place in fuseholders for dead-front assemblies; and

c) ensure that the line contact will not penetrate the center opening of the rejecter more than 1.91 mm (0.075 in).

Figure 7.8D
Dimensions of insulating rejecter for Type C non-interchangeable plug fuses, mm (in)



Fuse Rating	Diameter B mm (in)
15A or less	11.94 (0.47)
20A	13.72 (0.54)

Note: * Tolerance ± 0.13 mm (0.005 in)