UL 248-11

STANDARD FOR SAFETY

Low-Voltage Fuses – Part 11: Plug Fuses

UL Standard for Safety for Low-Voltage Fuses – Part 11: Plug Fuses, UL 248-11

Third Edition, Dated May 13, 2011

Summary of Topics

This revision of ANSI/UL 248-11 dated August 26, 2020 is being issued to update the title page to reflect the most recent designation as a Reaffirmed American National Standard (ANS). No technical changes have been made.

As noted in the Commitment for Amendments statement located on the back side of the title page, UL, CSA, and ANCE are committed to updating this harmonized standard jointly. However, the revision pages dated August 26, 2020 will not be jointly issued by UL, CSA, and ANCE as these revision pages only address UL ANSI approval dates.

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 requirements are substantially in accordance with Proposal(s) on this subject dated June 12, 2020.

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Second Edition

CSA Group
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Low-Voltage Fuses – Part 11: Plug Fuses

May 13, 2011

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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 Standard is subject to review within 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 inquiries@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 Third Edition including revisions through August 26, 2020. The most recent designation of ANSI/UL 248-11 as a Reaffirmed American National Standard (ANS) occurred on August 6, 2020. 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 harmonized ANCE, CSA, and UL standard for Low-Voltage Fuses – Part 11: Plug Fuses. It is the second edition of NMX-J-009/248/11-ANCE, the third edition of CSA C22.2 No. 248.11-11, and the third edition of UL 248-11. This edition of NMX-J-009-248/11-ANCE cancels the previous edition published in 2000. This edition of CSA C22.2 No. 248.11-11 supersedes the previous edition published in 2000.

This harmonized standard was prepared by the Association of Standardization and Certification (ANCE), the Canadian Standards Association (CSA), and Underwriters Laboratories Inc., (UL).

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 CT 32 from the Comite de Normalizacion de la Asociacion de Normalizacion y Certificacion, A. C., CONANCE, with the collaboration of the fuse manufacturers and users.

This standard was reviewed by the CSA Subcommittee on Fuses and Fuseholders, 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 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 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 is published as an identical standard for ANCE, CSA, 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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Low-Voltage Fuses – Part 11: plug fuses

1 General

NOTE –
This Part is intended to be read together with the Standard for Low-Voltage Fuses – Part 1: General Requirements, hereafter referred to as Part 1. The numbering of the Clauses in this Part correspond 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 Low-Voltage Fuses – Part 1: General Requirements, NMX-J-009/248/1-ANCE ♦ CAN/CSA C22.2 No. 248.1 ♦ UL 248-1.

1.1 Scope

This Part applies to plug fuses rated 30 A or less and 125 V ac (127 V ac for Mexico). DC ratings are optional.

4 Classification

Plug fuses are non-renewable and not current limiting, with an interrupting rating of 10,000 A. Plug fuses are divided into 3 sub-classifications. Time-delay ratings are optional.

Edison-base

Plug fuses which are interchangeable for all current ratings. No rejection feature is used. See Figure A.

Type C

Plug fuses which have a non-interchangeable feature for 3 current ranges (0 – 15, 16 – 20, and 21 – 30 A). See Figure A.

Type S

Plug fuses which have a non-interchangeable feature for 11 current ranges (0.1 – 1, 1.125 - 1.25; 1.4 – 1.6; 1.8 – 2.0; 2.25 – 2.5; 2.8 – 3.2; 3.5 – 4; 4.5 – 5; 5.6 – 6.25; 7 – 15; and 16 – 30 A). See Figure B.

In Canada only, Type C and Type S fuses may be used, and for all ratings 15 – 30 A, these fuses shall have low melting point "P" ("D" for time delay) characteristics.

5 Characteristics

5.2 Voltage rating

For AC, the rating shall be 125 V ac or, for fuses intended for installation in Mexico, the rating shall be 127 V ac.

The DC voltage rating may be different from the AC rating.

5.3 Current rating

30 A and less.

5.5 Interrupting rating

For AC – 10,000 A

For DC – 10,000 A

6 Marking

6.1 Marking of fuses

c) voltage rating is optional;

d) interrupting rating is optional;

e) fuse classification is optional; and

g) a plug fuse shall not be marked "Current Limiting."

In addition to the requirements in Part 1: Fuses for United States shall have a prominent hexagonal feature when rated 15 A or less. Fuses for Canada shall have a low melting point characteristic and shall be marked with a "P" or with a "D" for time delay.

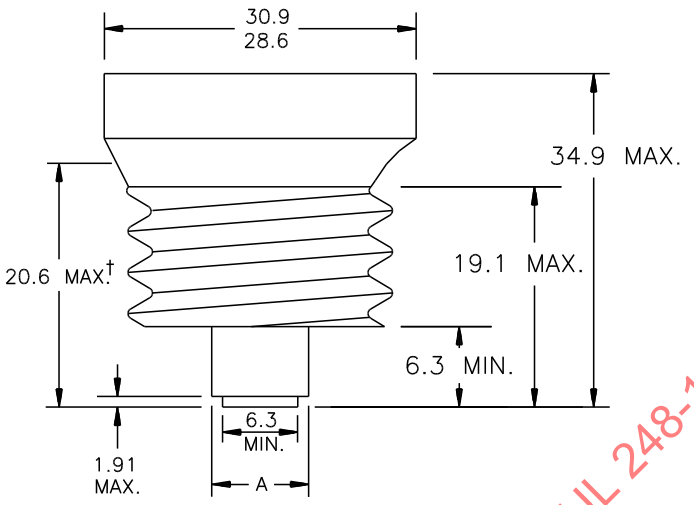
7 Construction

7.1 Dimensions

Fuse dimensions are shown in Figure A and Figure B.

Figure A

Dimensions of Edison-base and Type C plug fuses in mm (in)



mm	in
28.6 – 30.9	1.12 – 1.22
34.9	1.37
20.6	0.81
19.1	0.75
6.3	0.25
1.91	0.075

Note: There shall not be less than three full threads (seven threads per 25.4 mm (1 inch)) in the screwshell. Edison-base may include a tapered configuration for dimension A.

Type	Rating	Diameter A
	Current I_n, A	
Edison-base	0 – 30	19.1 (0.75) Max.
C	0 – 15	10.67[a]
	16 – 20	12.45[b]
	21 – 30	14.22[b]

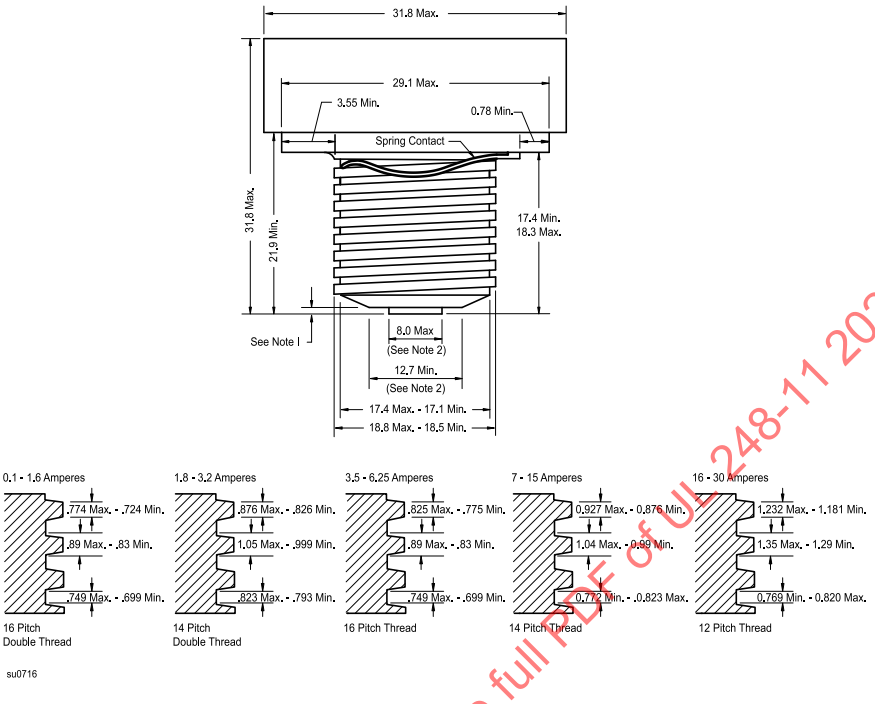
[a] Tolerance: +0.127 mm (+0.0050 in), -1.143 mm (-0.045 in)

[b] Tolerance: +0.127 mm (+0.0050 in), -0.127 mm (-0.0050 in)

[c] Tolerance: +1.143 mm (+0.045 in), -0.127 mm (-0.0050 in)

Figure B

Dimensions of Type S plug fuses in mm (in)



English Conversions for Screw Shell Dimensions Shown

mm	In
31.8	1.25
29.1	1.14
3.55	0.140
0.78	0.031
21.9	0.86
17.4 – 18.3	0.68 – 0.72
8.0	0.31
12.7	0.50
17.4 – 17.1	0.68 – 0.67
18.8 – 18.5	0.74 – 0.73
0.774 – 0.724	0.0347 – 0.0285
0.89 – 0.83	0.0350 – 0.0327
0.749 – 0.699	0.0295 – 0.0275
0.876 – 0.826	0.0384 – 0.0325
1.05 – 0.999	0.0413 – 0.0393
0.823 – 0.793	0.0324 – 0.0312
0.825 – 0.775	0.0325 – 0.0305
0.927 – 0.876	0.0365 – 0.0345
1.04 – 0.990	0.0409 – 0.0390
0.823 – 0.772	0.0324 – 0.0304
1.232 – 1.181	0.0485 – 0.0465
1.35 – 1.29	0.0531 – 0.0508
0.769 – 0.820	0.0303 – 0.0323

Screw Shell Threads

Ampere Rating	Size (TPI) and Character (starts) of Threads	Thickness of Bottom Contact	
		mm	in
3/10 – 1	16 – Double	2.74 - 2.92	0.108 – 0.115
1-1/8 – 1-1/4	16 – Double	1.65 -1.82	0.065 – 0.072
1-4/10 – 1-6/10	16 – Double	0.88 -1.06	0.035 – 0.042
1-8/10 – 2	14 – Double	2.74 -2.92	0.108 – 0.115
2-1/4 – 2-1/2	14 – Double	1.65 -1.82	0.065 – 0.072
2-8/10 – 3-2/10	14 – Double	0.88 -1.06	0.035 – 0.042
3-1/2 – 4	16 – Single	2.74 -2.92	0.108 – 0.115
4-1/2 – 5	16 – Single	1.65 -1.82	0.065 – 0.072
5-6/10 – 6-1/4	16 – Single	0.88 -1.06	0.035 – 0.042
7 – 8	14 – Single	2.74 -2.92	0.108 – 0.115
9 – 10	14 – Single	1.65 -1.82	0.065 – 0.072
12 – 14	14 – Single	0.88 -1.06	0.035 – 0.042
15	14 – Single	0.86 -1.01	0.034 – 0.040
20	12 – Single	1.95 -2.15	0.077 – 0.085
25	12 – Single	0.86 -1.01	0.034 – 0.040
30	12 – Single	0.86 -1.01	0.034 – 0.040

7.3 Connections

The design of a plug fuse shall be such that there are no exposed contact parts or other live parts when the fuse is in the fuseholder.

7.3.1 Edison-base and Type C plug fuses

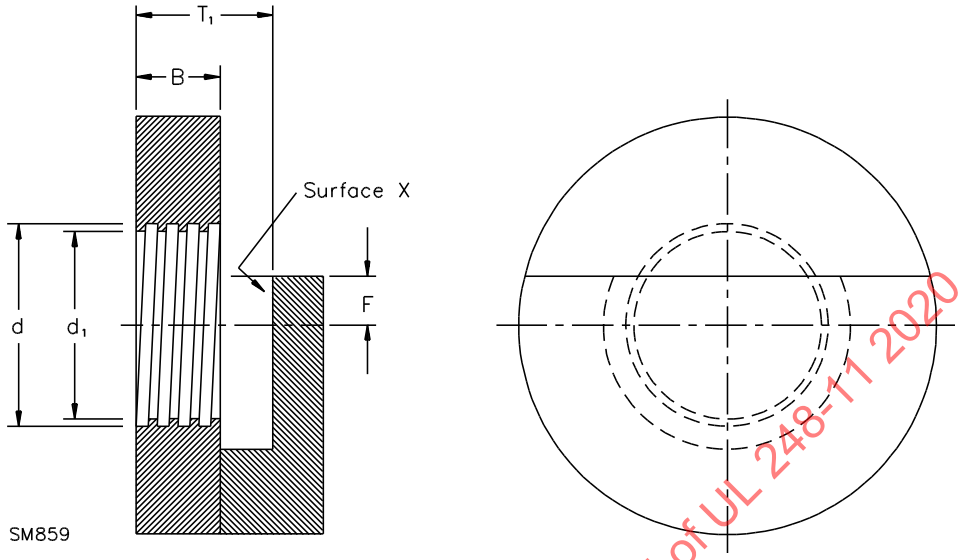
The screwshell of a fuse shall be formed from brass or other suitable copper alloy not less than 0.20 mm (0.008 in) thick. The thickness after forming shall not be less than 0.165 mm (0.0065 in), measured on the flat surface of the bottom of the shell.

If the fusible element is externally soldered to the screwshell, neither the fusible link nor solder shall extend more than 20.6 mm (0.81 in) above the plane of the center contact, and the solder shall not extend farther from the axis of the fuse than the farthest point on the screw shell.

The fuse shall fit the go gauge as shown in Figure C, and also shall not fit the no go gauge as shown in Figure D.

Figure C

Threaded go gauge for Edison-base or Type C plug fuses in mm (in)



Drawing Reference	Dimension		Tolerance	
B	10.67	(0.420)	±0.13	(±0.005)
F	5.84	(0.230)	±0.13	(±0.005)
T_1	17.526	(0.6900)	+0, -0.025	(+0, -0.0010)
d	26.492	(1.0430)	-0, +0.013	(-0, +0.0005)
d_1	24.816	(0.9770)	+0, -0.013	(+0, 0.0005)

Note 1: The form of the screw threads shall be in accordance with the dimensions shown on Standard Sheet 1-11-1 of ANSI Standard C81.10.

Note 2: This gauge is a modification of that shown on Standard Sheet 3-62-1 of ANSI Standard C81.10, for medium screw based lamps.