



UL 4248-12

STANDARD FOR SAFETY

Fuseholders – Part 12: Class R

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UL Standard for Safety for Fuseholders – Part 12: Class R, UL 4248-12

Second Edition, Dated January 19, 2018

Summary of Topics

The Second Edition of the Standard for Safety for Fuseholders – Part 12: Class R, UL 4248-12, has been issued to reflect the latest ANSI approval date and to incorporate the following proposal.

- ***Correction to dummy fuse dimensions.***

The revised requirements are substantially in accordance with Proposal(s) on this subject dated August 4, 2017.

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Second Edition



CSA Group
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Second Edition



Underwriters Laboratories Inc.
UL 4248-12
Second Edition

Fuseholders – Part 12: Class R

January 19, 2018



ANSI/UL 4248-12-2018



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 Second Edition.

The most recent designation of ANSI/UL 4248-12 as an American National Standard (ANSI) occurred on January 19, 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 harmonized ANCE, CSA Group, and UL standard for Fuseholders - Part 12: Class R. It is the second edition of NMX-J-009-4248-12-ANCE, the second edition of CAN/CSA-C22.2 No. 4248-12, and the second edition of UL 4248-12. This edition of CAN/CSA-C22.2 No. 4248-12 supersedes the previous edition published on February 28, 2007. This edition of UL 4248-12 supersedes the previous edition published on February 28, 2007.

This harmonized standard was prepared by the Association of Standardization and Certification, (ANCE), CSA Group and Underwriters Laboratories Inc. (UL). The efforts and support of the Technical Harmonization Subcommittee, CANENA Technical Harmonization Subcommittee 32B – Low Voltage Fuses on the Harmonization of Electrotechnical Standards of the Nations of the Americas (CANENA), are gratefully acknowledged. 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 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 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 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.

Fuseholders – Part 12: Class R

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 fuseholders intended for use with Class R Fuses as described in NMX-J-009/248/12-2000-ANCE, CSA C22.2 No. 248.12, UL 248-12, Low-Voltage Fuses – Part 12: Class R Fuses.

4 Classification

4.1 Class R fuseholders have a short-circuit withstand rating of 200,000 A. Class R fuseholders are rated 250 V or 600 V, and are divided into six body sizes in each voltage rating corresponding to the Class R fuse body sizes.

5 Characteristics

5.1 Summary of characteristics

5.1.3 Voltage and current rating

5.1.3.1 Class R fuseholders shall be rated 250 V or 600 V.

5.1.3.2 Class R fuseholders shall be rated 30, 60, 100, 200, 400, or 600 A.

5.1.4 Withstand rating

5.1.4.1 Class R fuseholders shall have a short-circuit withstand rating of 200,000 A.

6 Marking

6.1 Marking of fuseholder

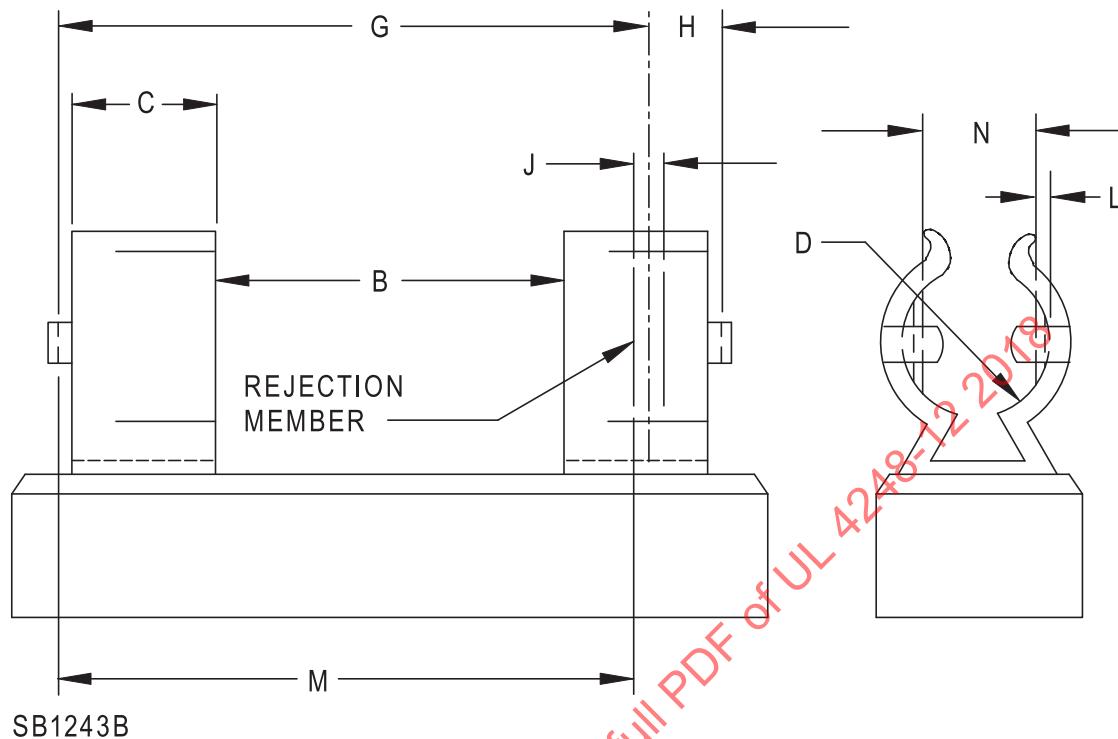
6.1.1.1 In addition to the requirements of Part 1, the fuseholder shall be marked "Use Class R Fuses".

7 Construction

7.6 Contacts of a cartridge fuseholder

7.6.1 The dimensions of a Class R fuseholder shall be as specified in Figure 7.6A or 7.6B, whichever is applicable. Class R fuseholders shall be provided with a rejection member to prevent the installation of fuses of other classes.

Figure 7.6A
Class R fuseholder, Ferrule contact type with rejection member



SB1243B

Tabs shown are a typical end-stop configuration.

Class of fuse	Potential rating of fuse, volts	Current rating of fuse, amperes	Dimensions, mm (in)			
			B	C	D	E
			Distance ^a between contact clips	Minimum width of contact clip	Diameter of ferrule	Thickness of blade
R	250	30	25.4 (1.0)	12.7 (0.5)	14.27 (0.562)	—
		60	44.45 (0.750)	15.88 (0.625)	20.62 (0.812)	—
		100	101.6 (4.0)	22.22 (0.437)	—	3.18 (0.125)
		200	114.3 (4.5)	31.75 (1.250)	—	4.75 (0.187)
		400	127.0 (5.0)	44.44 (1.750)	—	6.35 (0.250)
		600	152.4 (6.0)	53.97 (2.062)	—	6.35 (0.250)
	600	30	101.6 (4.0)	12.7 (0.5)	20.62 (0.812)	—
		60	107.95 (0.250)	15.88 (0.625)	26.97 (1.062)	—
		100	152.4 (6.0)	22.22 (0.875)	—	3.18 (0.125)
		200	177.8 (7.0)	31.75 (1.250)	—	4.75 (0.187)
		400	203.2 (8.0)	44.44 (1.750)	—	6.35 (0.250)
		600	228.6 (9.0)	53.97 (2.062)	—	6.35 (0.250)

NOTE – See Figure 7.6B for dimensions G, H, J, K, L, M, N, and I.

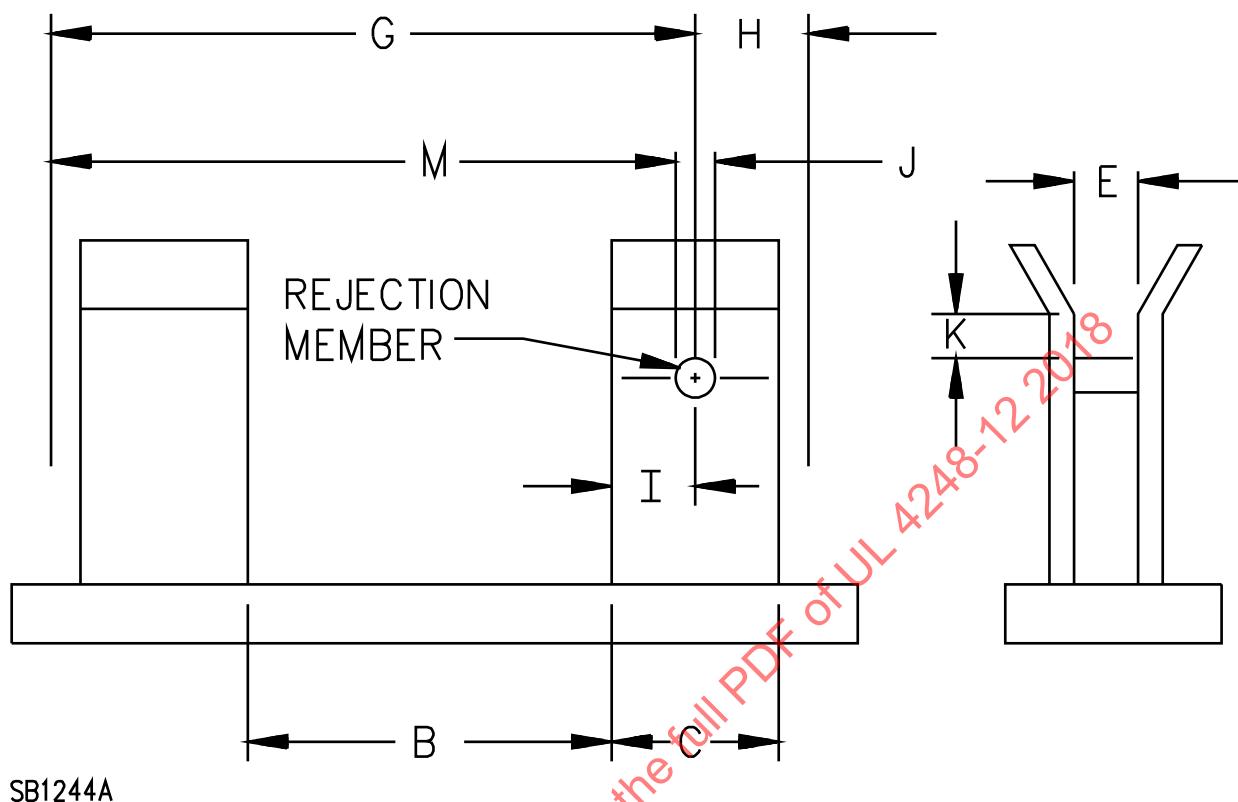
^a Tolerances for the B dimensions are:

60 A or less: plus 0.79 mm (0.031 in) and minus 1.57 mm (0.062 in);

100 and 200 amperes: plus 1.57 mm (0.062 in) and minus 0.79 mm (0.031 in);

400 and 600 amperes: plus 2.36 mm (0.093 in).

Figure 7.6B
Class R fuseholder, Blade type with rejection member



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Figure 7.6B continued

Class of fuse	Potential rating of fuse, volts	Current rating of fuse, amperes	Dimensions, mm (in)							
			G	H	J	K ^a	L ^b	M	N ^c	I
		Minimum distance from center of rejection member to end stop	Maximum distance from center of rejection member to end stop	Maximum width of rejection member	Contact above rejection member	Extension of rejection member from inside surface of clip	Maximum distance frm end of rejection member to end stop	Rejection member opening	Minimum/maximum distance to center rejection member	
R	250	30	48.1 (1.892)	4.19 (0.165)	1.65 (0.065)	—	2.03 (0.080)	48.41 (1.906)	10.29 (0.405)	—
		60	72.6 (2.860)	4.98 (0.196)	2.06 (0.081)	—	2.03 (0.080)	73.81 (2.906)	16.64 (0.655)	—
		100	—	—	6.48 (0.255)	7.14 (0.281)	—	—	—	10.92/12.29 (0.430/0.484)
		200	—	—	6.48 (0.255)	11.91 (0.469)	—	—	—	15.7/17.07 (0.6108/0.672)
		400	—	—	9.65 (0.380)	16.66 (0.655)	—	—	—	22.07/23.44 (0.869/0.923)
		600	—	—	12.83 (0.505)	19.84 (0.781)	—	—	—	26.82/28.19 (1.056/1.110)
R	600	30	123 (4.860)	4.98 (0.196)	2.06 (0.081)	—	2.032 (0.080)	124.61 (4.906)	16.64 (0.655)	—
		60	134.6 (5.298)	6.6 (0.260)	2.06 (0.081)	—	2.03 (0.080)	137.31 (5.406)	22.99 (0.905)	—
		100	—	—	6.48 (0.255)	7.14 (0.281)	—	—	—	10.92/12.29 (0.430/0.484)
		200	—	—	6.48 (0.255)	11.91 (0.469)	—	—	—	15.7/17.07 (0.618/ 0.672)
		400	—	—	9.65 (0.380)	16.66 (0.656)	—	—	—	22.07/23.44 (0.869/0.923)
		600	—	—	12.83 (0.505)	19.84 (0.781)	—	—	—	26.82/28.19 (1.056/1.110)

NOTE – See Figure 7.6A for dimensions B, C, D and E.

^a Column K
tolerance: +0.79 mm (0.031 in), – dimension E multiplied by 0.5.

^b Column L
tolerance: –0.41 mm (0.016 in), +0.000.

^c Column N
tolerance: –0.000, +1.52 mm (0.060 in).

8 Tests

8.1 General

8.1.1 Types of tests

8.1.1.1 Each fuseholder shall be subjected to the tests as specified in Part 1, with the addition of the following:

- e) verification of effectiveness of rejection member.

8.4 Verification of temperature rise

8.4.3 Test method

8.4.3.1 With dummy fuses in place and carrying rated current continuously, the temperature on a material or component or electrical insulation shall not exceed the values in Table 8.4B.

8.4.3.2 Dummy fuses shall be unplated copper and shall conform to the dimensions in Table 8.4A.

8.4.3.3 The temperatures specified in Table 8.4B are based on an assumed ambient temperature of 25°C (77°F). A test may be conducted at an ambient temperature within the range of 20 – 40°C (68 – 104°F).

8.4.3.4 During a test conducted at an ambient temperature of 25°C (77°F), an observed temperature shall not exceed the required value specified in Table 8.4B.

8.4.3.5 If a test is conducted at an ambient temperature other than 25°C (77°F), an observed temperature shall be corrected as described in Clause 8.4.3.6. Neither a corrected temperature nor an observed temperature shall exceed the required value specified in Table 8.4B.

8.4.3.6 An observed temperature shall be corrected by addition [if the ambient temperature is lower than 25°C (77°F)] or subtraction (if the ambient temperature is higher than 25°C) of the difference between 25°C and the ambient temperature.

8.4.3.7 If a corrected temperature exceeds the required value specified in Table 8.4B, at the request of the manufacturer, the test may be repeated at an ambient temperature closer to 25°C (77°F).

Table 8.4A
Dimensions of dummy fuses

Rating in amperes	Class of fuse	Shape	Dimensions, mm (in)				
			Outside diameter	Wall thickness	Length	Thickness	Width
30	R (250 volts)	Tube	14.27 (0.562)	1.15 (0.051)	50.8 (2.0)	–	–
60		Tube	20.62 (0.812)	1.45 (0.057)	76.2 (3.0)	–	–
100		Blade	–	–	149.23 (5.875)	3.18 (0.125)	19.05 (0.750)
200		Blade	–	–	180.98 (7.125)	4.75 (0.187)	28.58 (1.125)
400		Blade	–	–	219.08 (8.625)	6.35 (0.250)	41.28 (1.625)
600		Blade	–	–	263.51 (10.375)	6.35 (0.250)	50.8 (2.0)
30	R (600 volts)	Tube	20.62 (0.812)	1.45 (0.057)	127.0 (5.0)	–	–
60		Tube	26.97 (1.062)	1.63 (0.064)	139.7 (5.5)	–	–
100		Blade	–	–	200.02 (7.875)	3.18 (0.125)	19.05 (0.750)
200		Blade	–	–	244.48 (9.625)	4.75 (0.187)	28.58 (1.125)
400		Blade	–	–	295.28 (11.625)	6.35 (0.250)	41.28 (1.625)
600		Blade	–	–	339.72 (13.375)	6.35 (0.250)	50.8 (2.0)