UL 248-9

STANDARD FOR SAFETY

Low-Voltage Fuses – Part 9: Class K Fuses

UL Standard for Safety for Low-Voltage Fuses – Part 9: Class K Fuses, UL 248-9

Second Edition, Dated August 1, 2000

Summary of Topics

This revision of ANSI/UL 248-9 dated May 7, 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 May 7, 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 February 14, 2020.

No Text on This Page

Association of Standardization and Certification
NMX-J-009/248/9-2000-ANCE
First Edition

CSA Group
CAN/CSA-C22.2 No. 248.9-00
Second Edition

Underwriters Laboratories Inc.
UL 248-9
Second Edition

Low-Voltage Fuses – Part 9: Class K Fuses

August 1, 2000

(Title Page Reprinted: May 7, 2020)

ANSI/UL 248-9-2005 (R2020)

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.

ISBN 1-55324-242-4 © 2000 Canadian Standards Association

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.

To purchase CSA Group Standards and related publications, visit CSA Group’s Online Store at store.csagroup.org or call toll-free 1-800-463-6727 or 416-747-4044.

This ANSI/UL Standard for Safety consists of the Second edition including revisions through May 7, 2020.

The most recent designation of ANSI/UL 248-9 as a Reaffirmed American National Standard (ANS) occurred on May 7, 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.

To purchase UL Standards, visit UL's Standards Sales Site at http://www. shopulstandards. com/HowToOrder.aspx or call toll-free 1-888-853-3503.

CONTENTS

No Text on This Page

Preface

This is the common UL, CSA, and ANCE Standard for *Low-Voltage Fuses – Part 9: Class K Fuses*. This is the second edition of CAN/CSA-C22.2 No. 248.9-00 (superseding the first edition, published in 1996), the second edition of UL 248-9, and the first edition of NMX-J-009/248/9-2000-ANCE.

This Standard was prepared by a Technical Harmonization Committee comprised of members from Underwriters Laboratories, CSA International, the National Association of Standardization and Certification of the Electrical Sector, the end product manufacturers, and material suppliers. The efforts and support of the members of the Technical Harmonization Committee are gratefully acknowledged.

The present Mexican Standard was developed by the TC 32 Fuses 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 approved by the Technical Committee on Industrial Products under the jurisdiction of the CSA Strategic Steering Committee on the Requirements for Electrical Safety.

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 trinational standard is published as an Identical Standard. An identical standard is a standard that is the same in technical content except for conflicts in Codes and Governmental Regulations. Presentation is word for word except for editorial changes.

Interpretations

The interpretation by the SDO (Standards Development Organization) of an identical 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.

No Text on This Page

Low-Voltage Fuses – Part 9: Class K 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-009/248/9-2000-ANCE ♦ CAN/CSA C22.2 No. 248.1 ♦ UL 248-1.

1.1 Scope

This Part applies to Class K fuses rated 600 A or less and either 250 or 600 V ac. DC ratings are optional.

4 Classification

Class K fuses are non-renewable, with interrupting ratings of 50,000, 100,000, or 200,000 A. Class K fuses are divided into sub-classes K-1, K-5, and K-9 which are physically interchangeable with each other (and Class H fuses) for the same current and voltage ratings. Each sub-class has specified limits of peak let-through current and clearing I^2t characteristics. K-1 has the lowest limits (most current-limiting), K-5 higher, and K-9 highest. Each of the voltage ratings, 250 and 600 V ac, is divided into six body sizes. The maximum current rating, I_n, for each size is specified in this Part. Time-delay ratings are optional.

In Canada, 250V ac fuses rated 15 – 60 A shall have a low melting point "P" ("D" for time delay) characteristic. See sub-clauses 6.1 and 9.2.

5 Characteristics

5.2 Voltage rating

For AC, the rating shall be 250 or 600 V ac in accordance with dimensions shown in Figure A. The DC voltage rating may be different from the AC rating.

5.3 Current rating

Refer to Figure A and Figure B for range of current ratings in each body size for each voltage rating.

5.5 Interrupting rating

For AC – 50,000, 100,000, or 200,000 A

For DC, the preferred ratings are 10,000, 20,000, 50,000, 100,000, 150,000, or 200,000 A.

5.6 Peak let-through current and clearing I^2t characteristics

Maximum values of peak let-through current and clearing I^2t for 250 and 600 V ac, Class K-1, Class K-5, and Class K-9 fuses are given in Table A and Table B.

Table A
Maximum peak let-through current and clearing I^2t for 250 and 600 V ac Class K fuses at 50 and 100 kA

Class	Current rating I_n, A	Peak let-through current, A	I^2t, ampere-squared seconds
K-1	0 – 30	10,000	10,000
	31 – 60	12,000	40,000
	61 – 100	16,000	100,000
	101 – 200	22,000	400,000
	201 – 400	35,000	1,200,000
	401 – 600	50,000	3,000,000
K-5	0 – 30	11,000	50,000
	31 – 60	21,000	200,000
	61– 100	25,000	500,000
	101 – 200	40,000	1,600,000
	201 – 400	60,000	5,000,000
	401 – 600	80,000	10,000,000
K-9	0 – 30	14,000	50,000
	31 – 60	28,000	250,000
	61 – 100	35,000	650,000
	101 – 200	60,000	3,500,000
	201 – 400	80,000	15,000,000
	401 – 600	130,000	40,000,000

Table B
Maximum peak let-through current and clearing I^2t for 250 and 600 V ac Class K fuses at 200 kA

Class	Current rating I_n, A	Peak let-through current, A	I^2t, ampere-squared seconds
K-1	0 – 30	12,000	11,000
	31 – 60	16,000	50,000
	61 – 100	20,000	100,000
	101 – 200	30,000	400,000
	201 – 400	50,000	1,600,000
	401 – 600	70,000	4,000,000
K-5	0 – 30	14,000	50,000
	31 – 60	26,000	200,000
	61– 100	32,000	500,000
	101 – 200	50,000	2,000,000
	201 – 400	75,000	6,000,000
	401 – 600	100,000	12,000,000
K-9	0 – 30	14,000	50,000
	31 – 60	28,000	250,000
	61 – 100	35,000	650,000
	101 – 200	60,000	3,500,000
	201 – 400	80,000	15,000,000
	401 – 600	130,000	40,000,000

6 Marking

6.1 Marking of fuses

In addition to the requirements in Part 1: Fuses with a low melting point characteristic for Canada, shall be marked with a "P", or with a "D" for time delay.

g) The fuse shall not be marked "Current Limiting."

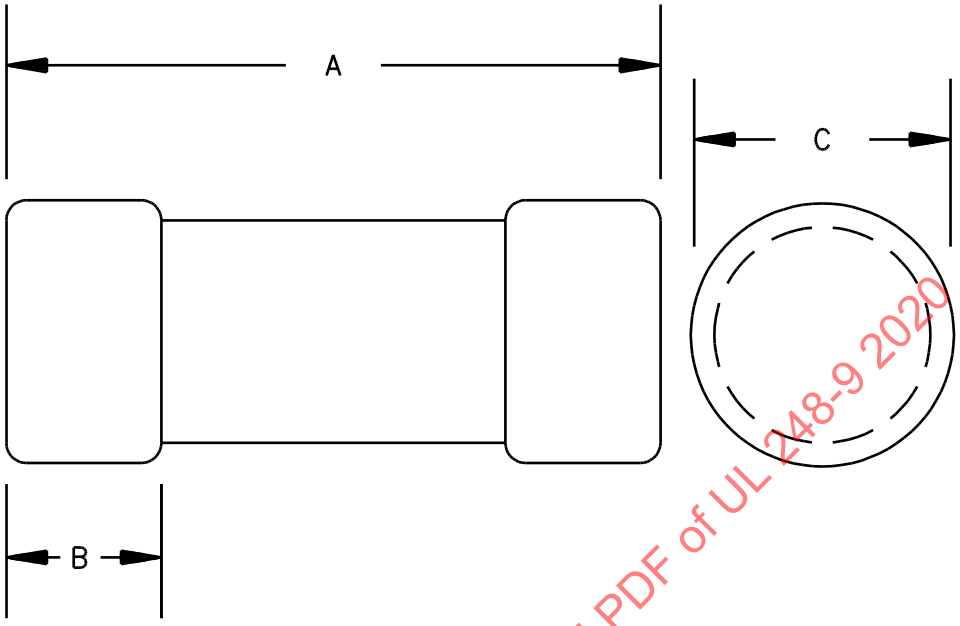
7 Construction

7.1 Dimensions

Fuse dimensions are shown in Figure A and Figure B.

Figure A

Dimensions of ferrule type Class K fuses in mm (in)



SB0586A

Rating		Overall length of fuse	Minimum length of ferrule	Outside diameter of ferrule
Volts	Current I_n, A			
		A[a]	B	C[b]
250	0 – 30	50.8 (2.00)	12.7 (0.50)	14.3 (0.56)
	31 – 60	76.2 (3.00)	15.9 (0.62)	20.6 (0.81)
600	0 – 30	127.0 (5.00)	12.7 (0.50)	20.6 (0.81)
	31 – 60	139.7 (5.50)	15.9 (0.62)	27.0 (1.06)

[a] Tolerance: ± 0.79 mm (± 0.031 in).

[b] Tolerance: ± 0.20 mm (± 0.008 in).