



Document Title:  
**Fuse Tube/Blade for 27 kV Cutout**

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**Distribution**

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**Related/Referenced Documents**

N/A

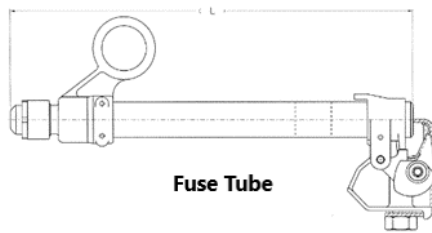
**Version History**

Version	Date	Revision Comments
1	Mar. 9, 2022	Document converted from PREPA to LUMA format for item 010-08093.
2	Sep. 28, 2022	Item 010-01171 converted from PREPA to LUMA format and cover page added to the document.
3	Feb. 06, 2023	S&C model for item 010-01171 modified in Table 1. (Document Version: 01)
4	Aug. 29, 2023	General format modifications. Description and model changed for Item 010-08093.
5	Sep. 27, 2023	General format modifications, document name changed, and Item 010-85362 created.



### Item Version History

Warehouse Catalog #	Asset Suite #	Version	Date
010-08093	83893	5	09/27/2023
010-01171	83894	6	09/27/2023
010-85362	85362	1	09/27/2023



Fuse Tube



Blade

## 1. Introduction

This is a general specification that covers the minimum requirements for 27 kV, 100A and 200A fuse tubes to be used in the distribution system in Puerto Rico. Further information will be provided by LUMA Energy at the time of order placement and will provide information on site specific conditions, quantity, and other requirements. This document includes the general electrical and mechanical characteristics of the equipment/material.

## 2. Special Requirements

Samples shall be furnished as requested by LUMA Energy. Vendors that have supplied this material to PREPA / LUMA on previous orders will not have to furnish samples at bid opening. The equipment/material will be received at the LUMA's general warehouse (011) at Palo Seco, Puerto Rico. Shipping will include transportation and unloading at the indicated warehouse.

## 3. Literature

Descriptive and technical literature must be supplied by the vendor at time of bidding. This literature may include, but is not limited to details of material, drawings, documented testing, and instructions for use and installation. Failure to submit documents on time will cause bidder disqualification. For products described in this specification as requiring qualification, awards will be made only for such products that, prior to the time for opening of bids, had been tested and/or approved by LUMA. Evidence of PREPA's and/or LUMA Energy's approval of the equipment/material shall be supplied by the vendor if requested by LUMA Energy.

## 4. Markings

- 4.1. Containers shall be marked outside with LUMA Energy's purchase order and item number.
- 4.2. Each fuse shall be marked with voltage & ampere ratings, and type as minimum.
- 4.3. Packaging labels and tags shall be waterproof.

## 5. Compatible with

- 5.1. For compatible manufacturer and model see Table 1.
- 5.2. These models are examples of the equipment/material described in this document and do not represent a preference. LUMA will evaluate equally any model not listed here during any acquisition event.

## 6. Packaging

All equipment/material shall be packaged and marked in such a way as to facilitate handling and protection from damage and that the receiving warehouse can readily identify it and send it, in one complete unit, to a field location without opening crates or boxes to sort items and/or parts.

## 7. Number Per Package (Logistics)

Twenty (20) units per box or as requested by LUMA.

## 8. Acceptance Criteria

8.1. Test required: certified by external laboratories.

8.2. Latest applicable codes, standards, and other regulations:

- a. IEC 60282-2: for expulsion fuses designed for outdoors or indoors use on alternating current systems of 50 Hz and 60 Hz, and of rated voltages exceeding 1 kV.
- b. IEEE C37.41-2016: for performing design tests for high-voltage (> 1kV) fuses, as well as for fuse disconnecting switches, are specified.
- c. IEEE C37.42-2016: for high-voltage (> 1kV) Class A and Class B expulsion and current-limiting fuses.

## 9. Description

9.1. These fuse tubes, or also known as fuse holders, and blades are used as replacement parts for 100 A, 200 A, and 300 A open fuse cutouts.

9.2. Shall fit any standard make of 27 kV open fuse cutout with a minimum leakage distance of 17" (43.18 cm).

9.3. Shall be made for highly corrosive environments.

9.4. All of them shall be approximately 14-3/4" (37.45 cm) long.

9.5. Shall be suitable to be hot stick operated.

9.6. See Table 1 for compatible cutout nominal current rating and interrupting rating.

9.7. Fuse Tube:

- a. Shall be constructed of moisture proof and arc resistant material such as a high-strength fiberglass with an ultraviolet inhibitor coating.
- b. Shall include a silver-plated cooper alloy cap and arc-shortening rod.
- c. The toggle type trunnion shall be silver-plated copper or other material suitable for an efficient current transfer.
- d. Shall include stainless-steel spring assistant to operate in highly corrosive environments.
- e. Any spring and pin in the link ejector shall be stainless-steel.

- 9.8. Blade:
- a. Shall be a solid blade made of copper.
  - b. Shall be rated to 300 A.

## 10. Inspection

The acceptance of any equipment/material shall in no way relieve the vendor from his responsibility to meet all the requirements of this specification, and it would not prevent subsequent rejection if such equipment/material were found later to be defective.

## 11. Proposal Information

- 11.1. Submitted proposals must include:
- a. Technical information
  - b. Table of Compliance completed by the bidder with reference (see Appendix 1).

## 12. Table 1: Warehouse and Asset Suite Identification Number

Warehouse Catalog #	Asset Suite #	Amps Rating	Compatible Cutout		Compatible Manufacturer & Model
			kVBIL	Interrupting Amps Rating (Asymmetric)	
010-08093	54484	100	150	12,000	Hubbell (T710313T) ABB (7194C60G06MP) S&C (89532R10)
010-01171	55295	200	150	12,000	Hubbell (T710343T) ABB (7194C60G26) S&C (89572R11)
010-85362	85362	300	150	N/A	Hubbell (T710333T) ABB (7194C60G08) S&C (89622R10)

— End of Specification —



## Appendix

## Appendix 1: Table of Compliance

Line	Criteria	Description	Pass/Fail (P / F)	Comments
1	Specification	The Proponent complies with the specification document 4350.179.		
2	Industry Standards	The Proponent complies with the industry standards established in this specification document (ANSI/IEEE, IEC).		
3	Material	Fuse Tube: High-strength fiberglass with an ultraviolet inhibitor coating.		
		Fuse Tube top and bottom: Silver-Plated Copper		
		Link Ejector springs and pins: Stainless-Steel		
		Solid Blade: Copper		
4	Product Requirements	Suitable for 27kV, 150kVBIL fused cutout		
		Approximately 14.75" long		
5	Electrical Requirements	Design Voltage: 27 kV		
		Basic Insulating Level: 150 kVBIL		
		Asymmetric Interrupting Current 12 kA		
		Nominal Current: 100 A (010-08093)		
		Nominal Current: 200 A (010-01171)		
		Nominal Current: 300 A (010-85362)		











# 4350.179 Fuse Tube-Blade for 27 kV Cutout (9-27-23)

Final Audit Report

2023-09-27

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