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**Bushing Plug Inserts**

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N/A

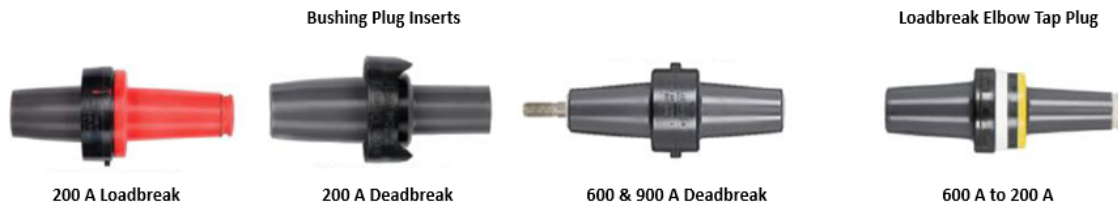
**Version History**

Version	Date	Revision Comments
01	Apr. 18, 2022	Modified from PREPA to LUMA format (Item: 038-00752)
02	Aug. 18, 2022	General format modifications and new items added (038-00679, 038-00687, 072-79765, 038-83337)
03	Oct. 04, 2024	Modified cover page, TOC, sections 3-5 and 8, and rearranged sections 4-5



## Item Version History

Warehouse Catalog #	Asset Suite #	Version	Date
038-00679	5498	08	10/04/2024
038-00687	54671	07	10/04/2024
038-00752	54675	06	10/04/2024
072-79765	79765	03	10/04/2024
038-83337	83337	02	10/04/2024



## 1. Introduction

This is a general specification that covers the minimum requirements for the Bushing Plug Inserts 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 Bushing Plug Inserts.

## 2. Special Requirements

Samples shall be furnished as requested by LUMA Energy. Vendors that have supplied this equipment/material to LUMA on previous orders will not have to furnish samples at bid opening. The equipment/material will be received at LUMA's general warehouse (O11) at Palo Seco, Puerto Rico. Shipping will include transportation and unloading at the indicated warehouse.

## 3. Literature

- 3.1. 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. **The literature must be an official document from, and certified by, the manufacturer.** Failure to submit documents on time and duly certified by the manufacturer will cause bidder disqualification.
- 3.2. If required by LUMA, final drawings and documentation shall be submitted by the vendor before the manufacturing and shipping process for approval.

## 4. Compatible with

For compatible manufacturers and models, see Table 2. These models are examples of the equipment/materials described in this document and do not represent a preference. LUMA will evaluate equally any models not listed here during any acquisition event.

## 5. Markings

- 5.1. Containers shall be marked outside with LUMA Energy's purchase order and item number.
- 5.2. Package(s) to be delivered to the warehouse shall be clearly marked with manufacturer and item information (part number, serial number, quantity, etc.)
- 5.3. Packaging labels and tags shall be waterproof.

## 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)

Standard Package: One (1) unit per box or as requested by LUMA.

## 8. Acceptance Criteria

- 8.1. Test required: certified by external qualified laboratories.
- 8.2. Product shall be manufactured in accordance with the latest issue below (section 8.3). When conflicts occur between purchaser's specifications and the latest issue below, the purchaser's specification shall prevail.
- 8.3. Latest applicable codes, standards, and other regulations:
  - a. IEEE 386-2016: establishes definitions, service conditions, ratings, interchangeable construction features, and tests for loadbreak and deadbreak separable insulated connector systems rated 900 A or less for use on shielded power distribution systems rated 2.5 kV through 35 kV.
- 8.4. If any other standards different from the ones indicated in this document are used, the supplier must provide information showing compatibility with the required ones.

## 9. Description

- 9.1. The bushing plug inserts are used to provide electrical connection and extension from the bushing well to the power distribution connector in pad-mounted cabinets, underground vaults, and other apparatus in a 15 kV class underground system. The elbow tap plug is used as an adapter to add a 200 A load break interface to an existing 600 A dead break T-body for testing and grounding 600 A systems.
- 9.2. Shall be suitable for 15/25 kV class connectors that conform to ANSI/IEEE 386. Load Break type for energized circuits and Dead Break type for de-energized circuits.
- 9.3. Housing shall be made of rubber or ethylene propylene diene terpolymer (EPDM), watertight, fully submersible, and resistant to chemicals.
- 9.4. Current carrying parts shall be suitable for copper and aluminum conductors. For the 900A models, these parts shall be made of copper.
- 9.5. Shall include a factory assembled threaded stud suitable for 15/25 kV for the 600 A and 900 A models.
- 9.6. The following minimum information shall be permanently attached to or made an integral stamped part of the insulated connecting plug:

- a. Device name
- b. Manufacturer’s name, trademark, type, and identification number
- c. Current rating
- d. Manufacture date and serial number

9.7. Table 1: Electrical Characteristics

Current Rating	Voltage Class	Minimum AC Withstand Voltage (1 min)	Minimum AIC RMS Symmetrical (at 10 cycles)	Minimum Basic Insulated Level	Minimum Corona Extinction
200	15 kV	34 kV	10 kA	95 kVBIL	11 kV
600 & 900 A	15/25 kV	40 kV	25 kA	125 kVBIL	19 kV

**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/materials were found later to be defective.

**11. Proposal Information**

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

**12. Table 2: Warehouse and Asset Suite Identification Number**

Current (A)	Warehouse Catalog #	Asset Suite #	Type	Compatible Manufacturer/Model
200	038-00679	5498	Load Break (Bushing Plug Insert)	Elastimold (1601A4) EATON (LBI215)
200	038-00687	54671	Dead Break (Bushing Plug Insert)	Elastimold (K1501A1)
600	038-00752	54675	Dead Break (Bushing Plug Insert)	Elastimold (K651CPSP) EATON (DCP625CS)
600 to 200	072-79765	79765	Load Break (Elbow Tap Plug)	Elastimold (650ETPSP) EATON (BLRTP615S)
900	038-83337	83337	Dead Break (Bushing Plug Insert)	Elastimold (K671CPSP) EATON (DCP625CS)

— End of Specification —



## Appendix

## Appendix 1: Table of Compliance

Criteria	Description	Pass/Fail	Comments
<b>Industry Standards</b>	Complies with IEEE 386-2016		
<b>Material</b>	Rubber or EPDM		
<b>Type</b>	038-00679: Load Break (Plug Insert)		
	038-00687: Dead Break (Plug Insert)		
	038-00752: Dead Break (Plug Insert)		
	072-79765: Load Break (Elbow Tap Plug)		
	038-83337: Dead Break (Plug Insert)		
<b>Requirements</b>	Fully shielded & watertight		
	Suitable for 15/25 kV class connectors that conform to ANSI/IEEE 386		
	Factory assembled threaded stud		
	Information described on section 9.6 permanently attached to or made an integral stamped part of the bushing		
<b>Electrical Characteristics (200 A Models)</b>	Voltage Class: 15 kV		
	Current Rating: 200 A		
	Basic Ins. Level: 95 kVBIL minimum		
	60 Hz 1 min. withstand: 34 kV minimum		
	Symmetrical Current: 10 kA @ 10 cycles		
	Min. Corona Extinction: 11 kV		
<b>Electrical Characteristics (600/900 A Models)</b>	Voltage Class: 15/25 kV		
	Current Rating: 600 & 900 A		
	Basic Ins. Level: 125 kVBIL minimum		
	60 Hz 1 min. withstand: 40 kV minimum		
	Symmetrical Current: 25 kA @ 10 cycles		
	Min. Corona Extinction: 19 kV		
<b>Conclusion</b>	Complies with the Specification (Doc. No. 4350.229)		

**NOTE: This table is only a checklist for reference. The compliance shall be with the complete document. Filling out the table with "PASS" won't be accepted as compliance without the technical information required to certify it.**












# 4350.229 Bushing Plug Inserts

Final Audit Report

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