



Equipment Specification
Document No.: 4350.249
Item No.: 038-00950
Asset Suite: 55168
Originating Department: Distribution Engineering



Grounding Elbow, 15 kV

1. Introduction

This is a general specification that covers the minimum requirements for grounding elbow to be used in the electrical 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 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 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. Quantity/Literature

Descriptive and technical literature must be supplied by 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 or material shall be supplied by 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. Packaging labels and tags shall be waterproof.

5. Equal or Approved Equal to

- 5.1. Elastimold (160 GLR).
- 5.2. Raychem – G y R Electrical - Luis González



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6. Packaging

All material and equipment 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 laboratories.

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

- a. IEEE 386-2016 for separable insulated connector systems for power distribution systems rated 2.5 kV through 35 kV.

9. Description

9.1. This equipment is used either by itself or with a 200 A, 15 kV class rated feedthrough to visible ground cables, transformers, and switchgears.

9.2. Shall provide a fully shielded, submersible connection, assuring proper stress relief for terminating cable.

9.3. Shall be suitable to mate with 200 A load break bushings and accessories rated at 8.3/14.4 kV as per IEEE 386 separable insulated connector system.

9.4. Housing shall be made of rubber or ethylene propylene diene terpolymer (EPDM), watertight, resistant to chemicals.

9.5. Shall have a 1/0 AWG stranded, tinned-copper ground lead of 6 ft (1.83 m) minimum, insulated at 600 V, for ground attachment.

9.6. The following information shall be permanently attached to or be made an integral stamped part of the grounding elbow:

- a. Device Name
- b. Manufacturer's Name, Trademark, Type, and Number
- c. Date of Manufacture and/or Serial Number



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9.7. Electrical Characteristics:

- a. Voltage Rating: 15 kV
- b. Current Ratings:
 - 1. Fault Closure: 10 kA RMS symmetrical for 0.17 sec.
 - 2. Short Time: 10 kA RMS symmetrical for 0.17 sec.
3.5 kA RMS symmetrical for 3.0 sec.

10. Inspection

The acceptance of any material or equipment 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 materials 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)

— End of Specification —

Document History

| | |
|-------------------------|----------------|
| Version | 4 |
| Date | 07/13/2022 |
| Author | Miguel Rios |
| Reviewer | Rafael Torres |
| Approver Manager | Ricardo Castro |



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Appendix



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Appendix 1: Table of Compliance

| Line | Criteria | Description | Pass/Fail (P / F) | Comments |
|------|------------------------|---|-------------------|----------|
| 1 | Specification | The Proponent complies with the corresponding specification document (4350.249). | | |
| 2 | Industry Standards | The Proponent complies with the industry standards established in the specification document. (ANSI/IEEE) | | |
| 3 | Type | Grounding | | |
| 4 | Housing Material | <ul style="list-style-type: none">• Rubber or EPDM• Fully shielded & watertight | | |
| 5 | Grounding Lead | <ul style="list-style-type: none">• Stranded, Tinned-Copper• 6 ft long | | |
| 6 | Product Requirement | <ul style="list-style-type: none">• Suitable to mate with 200 A load break bushings and accessories rated at 8.3/14.4 kV.• Body marked as indicated in section 9.6. | | |
| 7 | Electrical Requirement | <ul style="list-style-type: none">• Voltage Class: 15kV• Current Capacity:<ul style="list-style-type: none">• Fault Closure: 10 kA RMS symmetrical for 0.17 sec.• Short Time:<ul style="list-style-type: none">• 10 kA RMS symmetrical for 0.17 sec.• 3.5 kA RMS symmetrical for 3.0 sec | | |