



Document Title:  
**15KV Outdoor Cable Terminations Stress Cone for  
 Tape Shield Cable**

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**Related/Referenced Documents**

N/A

**Version History**

Version	Date	Revision Comments
01	Dec. 13, 2021	Initial release
02	Jul. 21, 2022	Signature format change and general revision.
03	Jan. 23, 2025	General format revision. Cover page added. TOC revised. Title changed.



## Item Version History

Warehouse Catalog #	Asset Suite #	Version	Date
038-01461	55871	13	01/23/2025
038-01495	56913	13	01/23/2025
038-01453	55870	13	01/23/2025
038-01438	55868	13	01/23/2025
038-01446	55869	13	01/23/2025
038-01479	55872	13	01/23/2025



## 1. Introduction

This is a general specification that covers the minimum requirements for 15 KV outdoor cable termination 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 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 (011) 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 must 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 manufacturer and model see Table 1. 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.

## 5. Markings

- 5.1. Containers or pallets shall be marked outside with LUMA Energy's purchase order and warehouse catalog number.
- 5.2. Individual package(s) shall be clearly marked with manufacturer name and item information (part number, serial number, quantity, etc.).
- 5.3. Packaging labels and tags shall be waterproof.

## 6. Packaging

- 6.1. 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.
- 6.2. A list of all parts included in the container and/or package must be provided at the time of delivery so that the receiving personnel can verify that everything requested is present, avoiding any delay in the receiving process.

## 7. Number Per Package (Logistics)

- 7.1. Standard package: one (1) unit per package or as requested by LUMA Energy.
- 7.2. All parts and accessories shall be contained inside the package or box.

## 8. Acceptance Criteria

- 8.1. Test required: certified by external 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 48 - Standard for indoor and outdoor cable terminations.
  - b. ANSI C119.4 – Standard for cable connectors for aluminum and copper conductors.
  - c. AEIC CS8-06n - Standards for XLP and EPR insulated cables.
  - d. ANSI/ICEA S-94-649-2004, S-97-682-2000 - Standards for XLP and EPR insulated cables.
- 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. Single phase, vertical operation, 15 KV, 110 KV Bill, outdoor termination stress cone for copper conductor with stranded, cross-linked insulation, copper tape shielded, semiconducting tape, and PE jacketed.
- 9.2. To be used in 13.2 KV, 60 Hz system. Conductor sizes as per Table 1.
- 9.3. Minimum of three (3) skirts, designed for vertical operation, capable of being mounted in a bracket or crossarm hanger in accordance with EEI-NEMA standards.
- 9.4. Termination shall be of silicone rubber or other approved material. Plastic, EPDM, or resin body kits are not allowed.
- 9.5. Must be UV resistant, hydrophobic and track resistant.

- 9.6. Must be furnish with the proper entrance fitting for the intended cable.
- 9.7. Shall provide fully shield watertight ground take off.
- 9.8. Must have shield adapter or a grounding device with a connector capable to bond a 1/0 AWG copper grounding wire.
- 9.9. Shall eliminate the need of soldering.
- 9.10. Must include:
  - a. Crimp type connector.
  - b. Stress relief cone
  - c. Seal tube
  - d. Metallic tape shield
  - e. Copper ground lead of adequate size for the intended use.
  - f. Insulating material
  - g. Stem connector (pin terminal)
- 9.11. All steel parts must be stainless steel.
- 9.12. Shall be suitable to be installed in a manhole with elbow connectors, in-line splice, and switching units.

## **10. Inspection**

- 10.1. Upon inspection of incoming equipment/material, the purchaser reserves the right to refuse product shipments and to determine the acceptability or rejection of the product received. The supplier shall be liable for all costs incurred for a product that is rejected.
- 10.2. 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, drawings, and tests.
  - b. Table of Compliance completed by the bidder with reference (see Appendix 1).



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

Conductor Size (Stranded)	Warehouse Catalog #	Asset Suite #	Suggested Manufacturer	Termination Kit #	Connector Item #
#2 AWG	038-01461	55871	3M-Cold Shrink	QT II - 5633K	SC0001
			3M-Cold Shrink	QT III - 7692-S-4	SC0001
			Thomas & Betts Elastimold-Ranger2	R2T15M1-T0220	included
			TE Connectivity	TFT-151E-SG	ASBP-2-4/0-6
1/0 AWG	038-01495	56913	3M-Cold Shrink	QT II - 5633K	SC0010
			3M-Cold Shrink	QT III - 7692-S-4	SC0010
			Thomas & Betts Elastimold-Ranger2	R2T15M1-T0240	included
			TE Connectivity	TFT-151E-SG	ASBP-2-4/0-6
2/0 AWG	038-01453	55870	3M-Cold Shrink	QT II - 5633K	SC0020
			3M-Cold Shrink	QT III - 7692-S-4	SC0020
			Thomas & Betts Elastimold-Ranger2	R2T15M1-T0250	included
			TE Connectivity	TFT-151E-SG	ASBP-2-4/0-6
4/0 AWG	038-01438	55868	3M-Cold Shrink	QT II - 5635K	SC0040
			3M-Cold Shrink	QT III - 7692-S-4	SC0040
			Thomas & Betts Elastimold-Ranger2	R2T15M1-T0270	included
			TE Connectivity	TFT-151E-SG	ASBP-2-4/0-6
500 MCM	038-01446	55869	3M-Cold Shrink	QT II - 5636K	Stem Connector
			3M-Cold Shrink	QT III - 7695-S-4	Stem Connector
			Thomas & Betts Elastimold-Ranger2	R2T15M2-N2330	included
			TE Connectivity	TFT-153E-SG	ASBP-500-750-12
750 MCM	038-01479	55872	3M-Cold Shrink	QT II - 5637K	Stem Connector
			3M-Cold Shrink	QT III - 7695-S-4	Stem Connector
			Thomas & Betts Elastimold-Ranger2	R2T15M4-N2380	included
			TE Connectivity	TFT-153E-SG	ASBP-500-750-12

— End of Specification —



## Appendix

### Appendix 1: Table of Compliance

Line	Description	Pass/Fail (P/F)	Comments
1	The Proponent complies with the corresponding specification document 4350.135.		
2	Industry Standards: IEEE 48, ANSI C119.4, AEIC CS8-06n, ANSI/ICEA S-94-649-2004, S-97-682-2000		
3	Tech. info., drawings, and tests provided.		
4	Single phase, vertical operation, 15 KV, 110 KV Bill, outdoor termination stress cone, 4 skirt		
5	Silicone rubber insulator		
6	For use with tape, wire shield, XLPE insulation, 15 KV copper conductor		
7	Must be a one-piece cold shrink silicon rubber insulator with a minimum of 3 skirt		
8	Termination kit must include a shield adapter or a grounding device with a connector capable to bond a 1/0 AWG copper grounding wire		
9	Termination kit must include stem connector (Pin Terminal)		
10	Parts included: <ul style="list-style-type: none"> <li>• Crimp type connector.</li> <li>• Stress relief cone</li> <li>• Seal tube</li> <li>• Metallic tape shield</li> <li>• Copper ground lead of adequate size for the intended use.</li> <li>• Insulating material</li> <li>• Stem connector</li> </ul>		
11	Must be capable to be mounted in a bracket or crossarm hanger in accordance with EEI-NEMA standards		
12	Shall be compatible with the conductor size as indicated in Table 1		

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