



**Anchor System 15 ft.
Transmission 115 & 230 kV**

Equipment Specification
Document No.: 4752.191B
Item No.: 002-14445
Originating Dept: Transmission Eng.

	Document Title: Anchor System 15 ft. Transmission 115 & 230 kV		
	Document Type: Equipment Specification	Document No.: 4752.191B	
Department: Transmission Engineering	Version: 01	Issue Date: 5/18/2022	Effective Date: 5/18/2022

<p>Author Emmanuel E Rivera Cruz Designer, Transmission & Substation Engineering</p> <p>Reviewer 1 Rene Maldonado Supervisor, Line Engineering Standards</p> <p>Reviewer 2 Oscar Venegas Lead Engineer, Trans</p> <p>Approver Walter Carrasquillo Alberty Manager, T&S Standards and Materials</p>	Signature and Date Emmanuel E Rivera Cruz (May 31, 2022 15:51 EDT)
	Signature and Date Rene Maldonado (Jun 1, 2022 09:49 EDT)
	Signature and Date Oscar E Venegas (Jun 6, 2022 11:04 EDT)
	Signature and Date Walter Carrasquillo (Jun 6, 2022 16:11 EDT)

Management Approval	
Heriberto González Section Manager, Standards	Signature and Date Heriberto Gonzalez (Jun 6, 2022 18:03 EDT)
Darrel Wilvers Director, Asset Management	Signature and Date N/A

Version History					
Version	Date	Revision Comments	Author	Reviewers	Approver
00	Dec 28, 2021		Rene Maldonado	Heriberto Gonzalez	Walter Carrasquillo
01	May 18, 2022	General revision for final approval	Emmanuel E. Rivera	Rene Maldonado Oscar Venegas	Walter Carrasquillo



1. General

- 1.1. This is a general specification that covers the minimum requirements for Anchor System 15 ft. Transmission 115 & 230 kV to be used in the transmission system in Puerto Rico.
- 1.2. Further information will be provided by LUMA Energy at the time of order placement and will provide information on site conditions, quantity, and other requirements.
- 1.3. This document includes the general electrical and mechanical characteristics of the material.

2. Specific Name

- 2.1. Anchor System 15 ft. Transmission 115 & 230 kV.

3. Basic Use

- 3.1. For anchoring the transmission line structures 115 & 230 kV.

4. Special Requirements

- 4.1. Shall not be accepted any welding procedure as part of the fabrication of any item detailed in this specification. Items 9.1.1 and 9.1.2 shall be assembled together for delivery. Any of the Items 9.1.1, 9.1.2 and 9.1.3 will be returned to the manufacturer if the elements do not fit each other.
- 4.2. Samples shall be furnished if requested by LUMA.
- 4.3. LUMA may require one (1) unit properly labeled for testing and analysis.
- 4.4. Descriptive and technical literature shall be supplied if requested by LUMA.

5. Marking and Packaging

- 5.1. 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.

6. Equal or approved equal to:

- 6.1. As approved by LUMA.

7. Number per package:

- 7.1. Pallet quantity: as requested by LUMA.

8. Acceptance Criteria

- 8.1. Latest applicable codes, standards, and other regulations: ANSI/ASTM.



9. Description

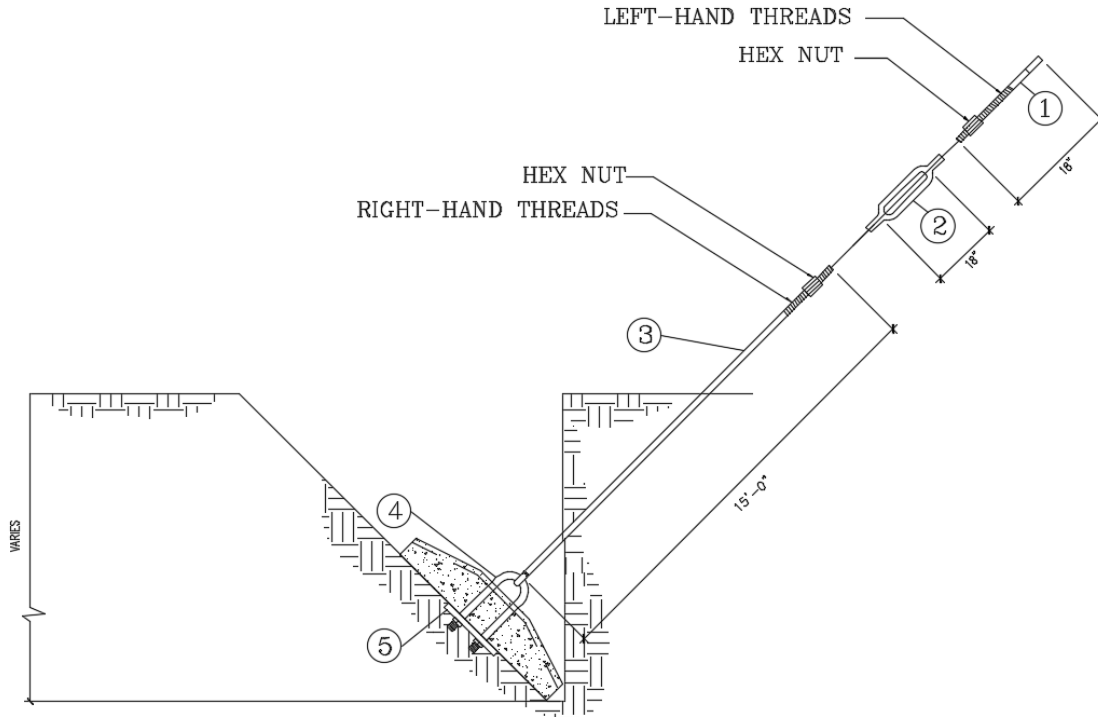
- 9.1. Transmission 115 & 230 kV guy system (unit), hot dip galvanized, which consists of:
- 9.1.1. **Oval eye rod with nut**, left-hand threaded, 18" long and 1 ½" diameter. Steel shall be as per ASTM A572, Gr. 50. Shall have a 12" minimum threaded end. Ultimate strength shall not be less than 75,000 lbf. Shall fit in the 18" long turnbuckle as described in Item 9.1.2. Threads in oval eye rod shall be cut threaded. Both, rod threads and rod body, shall have 1 ½" (full) diameter. Shall include one hex nut (not welded).
- 9.1.2. **18" long turnbuckle**, to be used for 1 ½" oval eye rod at one side, and 1 ½" anchor rod described in Item 9.1.3, at the other side. Steel shall be as per ASTM A572, Gr. 50. Ultimate strength shall not be less than 75,000 lbf. Shall fit a left-hand threaded oval eye rod at one end and a right-hand threaded anchor rod at the other end.
- 9.1.3. **Oval eye anchor rod-15 Ft. with nut**, right-hand threaded, 1 ½" x 15' long. Steel shall be as per ASTM A572, Gr. 50. Shall have a 12" minimum threaded end. Ultimate strength shall not be less than 75,000 lbf. Shall fit in the 18" long turnbuckle described in Item 9.1.2. Also, the eye shall fit a U-bolt 1 ¼" in diameter. Threads shall be cut threaded. Both, rod threads and rod body, shall have 1 ½" (full) diameter. Shall include one hex nut (not welded).
- 9.1.4. **U-bolt, 1 ¼" x 1'-6" long (min)**, separation between threads of 5 ¼" center to center. Shall have minimum threaded ends of 3" with appropriate hex nuts. Shall fit oval eye anchor rod in Item 9.1.3 and steel plate in Item 9.1.5. Ultimate strength shall not be less than 75,000 lbf. Steel shall be as per ASTM A572, Gr. 50.
- 9.1.5. **Steel plate, 12" x 12" x 1"**, with two drill holes 1 5/16" in diameter and 5 ¼" center to center separation between them. Shall fit U-bolt described in Item 9.1.4 and concrete dome anchor detail enclosed with this specification. Steel shall be as per ASTM A572, Gr. 50.
- 9.2. Metric conversions as per latest ASTM.

10. Inspection

- 10.1. 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 shall not prevent subsequent rejection if such material is found to be defective later.



11. Drawing



MATERIAL LIST

- ① 1 1/2" X 18" HOT DIP GALVANIZED OVAL EYE BOLT.
- ② 18" TURNBUCKLE WITH NUT FOR 1 1/2" ROD, EYE BOLT & EXTENSIONS A572 GR 50.
- ③ 1 1/2" X 15', HOT DIP GALVANIZED OVAL EYE WELD ON ANCHOR
AND REMOVABLE LOCK NUT A572 GR 50.
- ④ 1 1/4" ϕ U-BOLT HOT DIP GALVANIZED A572 GR 50
- ⑤ 12" X 12" X 1" HOT DIP GALVANIZED A572 GR 50 STEEL PLATE.

— End of Specification —