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**Power-Installed Helix Anchor Assembly**

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Department

**Distribution**

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**Related/Referenced Documents**

N/A

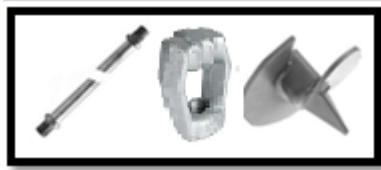
**Version History**

Version	Date	Revision Comments
1	Aug. 26, 2021	Document created in LUMA format.
2	Dic. 13, 2021	Code 002-82193 assigned. Section 3, 4, 7, and 9 edited.
3	Oct. 18, 2022	Cover Page and TOC added. Codes 002-83586 and 002-83587 assigned.
4	Aug. 18, 2023	Item 002-82193 description modified. General revision for all items.
5	Dec. 21, 2023	General format modifications, sections 8, 9, and TOC modified.
6	Jul. 18, 2024	General format modifications, TOC updated, Section 4 modified, sections order rearranged, and Eye nut dimensions modified.



### Item Version History

Warehouse Catalog #	Asset Suite #	Version	Date
002-82193	82193	6	7/18/2024
002-83586	83586	4	7/18/2024
002-83587	83587	4	7/18/2024



## 1. Introduction

This is a general specification that covers the minimum requirements for a helix anchor assembly 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 equipment/material to 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. If required by LUMA, final drawings shall be submitted by the vendor before the manufacturing and shipping process for approval.

## 4. Compatible with

For compatible manufacturers and models, see Table 1. 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. Packaging labels and tags shall be waterproof.
- 5.3. Each item must be marked with the manufacturer's identification number on the upper portion of the hub.

## 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)

Supplier shall indicate the logistics at bid opening or as requested by LUMA.

## 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. ASTM A143: for safeguarding against embrittlement of hot dip galvanized structural steel products and procedure.
  - b. ASTM A153: for zinc coating (hot dip galvanized) on iron and hardware, applies to hardware products such as castings, fasteners, rolled, pressed, and forged products, and miscellaneous threaded objects that will be centrifuged, spun, or otherwise handled to remove the excess zinc.
  - c. ASTM A283/A283M: for low and intermediate tensile strength carbon steel plates.
  - d. ASTM A6/A6M: for the general requirements that apply to rolled structural steel bars, plates, shapes, and sheet piling.
  - e. ASTM A53/A53M: for pipe, steel, black and hot dipped, zinc coated, welded, and seamless.
  - f. ASTM A575 and/or A576: for hot-wrought special quality carbon steel bars.
- 8.4. If any other standard 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 helix anchor is used as an earth tension anchoring to counteract uplift forces acting in very hard soils short of solid rock.
- 9.2. Shall be furnished as a set including the helix anchor, a rod, and a triple eye-nut from the same manufacturer to ensure correct fitting. When an extension with coupling is required, shall be furnished as a set from the same manufacturer as the helix, rod, and triple eye-nut. It is not necessary to furnish it fully assembled.

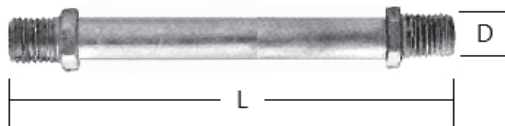
- 9.3. Rods and eye-nuts shall be provided with a finish that is smooth, continuous, and thorough.
- 9.4. The helix shall have a lead point to improve penetration and help soil flow from below the hub to above the anchor.
- 9.5. The anchor shall be aligned within 5° with the guy load to comply with the specified tensile strength.

9.6. Helix characteristics:

- a. Material: hot dip galvanized according with ASTM A153.
- b. Shall be used with 3/4" or 1" (1.9 or 2.5 cm) diameter rods with 1"-8UNC diameter threaded ends.
- c. Shall be installed with a 15,000 lbf (66.7kN) torque wrench of 2-1/2" (6.4 cm) square inside hub.
- d. Dimensions:
  - 1. Diameter: 10" (25.4 cm)
  - 2. Hub size: 2.5" (6.4 cm) square type
  - 3. Torque-rating: 15,000 lbf (66.7 kN)
- e. Approximate weight: 16.4 lbs. (7.4 kg)



9.7. Rod characteristics:



- a. Material: hot dip galvanized according with ASTM A153. Hot dip galvanized as per ASTM 123 shall be evaluated by LUMA.
- b. Dimensions (L) & Weight: 7' (2.1 m) L X 3/4" (1.9 cm) D & 9.7 lbs. (4.4 kg) approx.  
3.5' (1.1 m) L X 3/4" (1.9 cm) D & 4.8 lbs. (2.2 kg) approx.
- c. Ultimate strength: 23,000 lbf (102.3 kN)
- d. Threaded ends shall be 1"-8UNC (2.5 cm) diameter (D) X 1.18" (3 cm) approximate length.

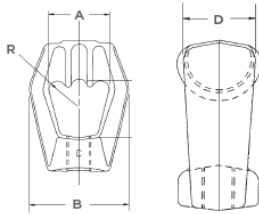
9.8. Eye-Nut characteristics:

- a. Style: triple eye.
- b. Material: hot dip galvanized according with ASTM A153.
- c. Approximate weight: 2 lbs. (0.9 kg)



d. Shall be used with 3/4" or 1" (1.9 or 2.5 cm) diameter rods with 1"-8UNC diameter threaded ends.

e. Approximate dimensions:



1. A: 1-3/4" (4.4 cm)
2. B: 2-13/16" (7.1 cm)
3. C: 1-5/8" (4.1 cm)
4. D: 1-1/2" (3.8 cm)
5. R: 1/4" (1.0 cm)

9.9. Coupling for rod extension:



- a. Material: hot dip galvanized according with ASTM A153. Hot dip galvanized as per ASTM 123 shall be evaluated by LUMA.
- b. Shall be able to accept 3/4" or 1" (1.9 or 2.5 cm) helix rods with 1"-8UNC diameter threaded ends.
- c. Approximate Weight: 0.5 lbs. (0.2 kg)

## 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 1: Warehouse and Asset Suite Identification Number

Item	Warehouse Catalog #	Asset Suite #	Compatible Manufacturer & Model
Helix, Rod & Thimble Eye-nut assembly	002-82193	82193	Hubbell: Helix: C1025001; Rod & Triple Eye-nut combination: E1020052
			Maclean: Helix: TDH250-104; Rod & Triple Eye-nut combination: D75T
3.5' Rod and Coupling Combination	002-83586	83586	Hubbell (12250A) Maclean (D7531/2C)
7' Rod and Coupling Combination	002-83587	83587	Hubbell (C1022328) Maclean (D75C)

— 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 4350.015.		
2	Industry Standards	The Proponent complies with the industry standards established in the specification document. (ASTM)		
3	Documents	Tech. info., tests & drawings provided.		
4	Material	Hot dip galvanized according with ASTM A153 for all components.		
5	Product Requirements	<ul style="list-style-type: none"> <li>• 002-82193: furnished as a set including the helix anchor, 7' rod, and triple eye-nut.</li> <li>• 002-83586: furnished as a set including the 3.5' rod and coupling.</li> <li>• 002-83587: furnished as a set including the 7' rod and coupling.</li> <li>• All of them from the same manufacturer to ensure proper fit between them.</li> </ul>		
6	Helix	<ul style="list-style-type: none"> <li>• Shall be used with 3/4" or 1" diameter rods with 1"-8UNC Ø threaded ends.</li> <li>• Diameter: 10"</li> <li>• Hub size: 2.5" square type</li> <li>• Approximate weight: 16.4 lbs.</li> </ul>		
7	Rod	<ul style="list-style-type: none"> <li>• 002-83586: Dimensions; 3.5' X 3/4" Approximate Weight: 4.8 lbs.</li> <li>• 002-83587: Dimensions; 7' X 3/4" Approximate Weight: 9.7 lbs.</li> <li>• Ultimate strength: 23,000 lbf</li> </ul>		
8	Eye-Nut	<ul style="list-style-type: none"> <li>• Style: Triple Eye.</li> <li>• Shall be used with 3/4" or 1" diameter rods with 1"-8UNC Ø threaded ends.</li> <li>• Approximate dimensions: See Fig. 9.8 (e)</li> <li>• Approximate Weight: 2 lbs.</li> </ul>		
9	Coupling	<ul style="list-style-type: none"> <li>• For 3/4" or 1" rod with 1"-8UNC Ø threaded ends.</li> <li>• Approximate Weight: 0.5 lbs.</li> </ul>		

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











# 4350.015 Helix Anchor (7-18-24)

Final Audit Report

2024-07-18

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