



Document Title:
Dead-End Quadrant Strain Clamp, ACSR and Aluminum Conductors

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Related/Referenced Documents

N/A

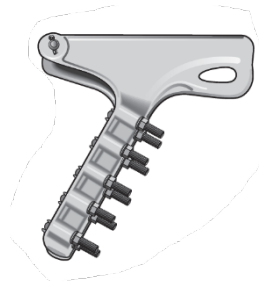
Version History

Version	Date	Revision Comments
01	Sep. 28, 2021	From PREPA to LUMA Format for Item 002-10393. Original Document 4350.084.
02	Oct. 05, 2021	From PREPA to LUMA Format for Item 002-13710. Original Document 4350.087.
03	May. 20, 2022	From PREPA to LUMA Format for Item 002-09239. Documents 4350.084 and 4350.087 unified in Document 4350.084 with the three Items included.
04	Jun. 19, 2023	Cover Page added, Document Name changed, and general format modifications. MacLean model for Item 002-10393 changed on Table 1.
05	Jul. 17, 2023	Document changed as shared between T&D for Item 002-13710.
06	Aug. 11, 2023	Section 5 modified. Item 002-13710 description and compatible model modified.
07	Dec. 06, 2024	General format modifications, TOC update, Sections 3, 4 & 8 modified, and sections order rearranged. Clamping range for Item 002-09239 modified.



Item Version History

Warehouse Catalog #	Asset Suite #	Version	Date
002-10393	55911	13	12/06/2024
002-09239	54349	7	12/06/2024
002-13710	57704	11	12/06/2024



1. Introduction

This is a general specification that covers the minimum requirements for aluminum dead-end quadrant strain clamps used in the distribution and transmission 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 2. 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

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: as per Table 2 or as requested by LUMA Energy.

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. ANSI C119.4: Electric connectors for use between aluminum-to-aluminum and aluminum-to-copper conductors designed for normal operation at or below 93°C and copper-to-copper conductors designed for normal operation at or below 100°C.
- b. ASTM A153: For zinc coatings applied by the hot-dip process on iron and steel hardware.

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

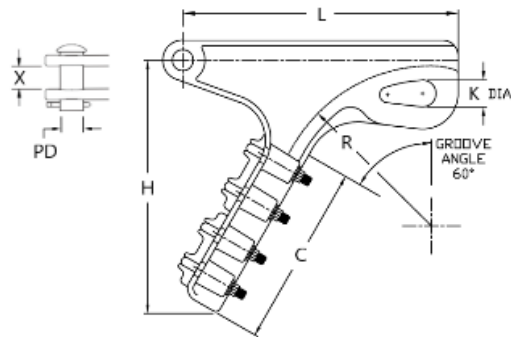
9.1. Used for dead-end applications on distribution and transmission systems.

9.2. Shall have the following characteristics:

- a. See Table 2 for Clamping Range & Conductor Outside Diameter, number of U-Bolts, Minimum Ultimate Strength, and Fitting Type.
- b. Clamping range and strength shall be stamped in the clamp body.
- c. Shall have clevis at one end of clamp body to provide for mounting or installation.
- d. Pulling eye shall be designed to accommodate come-along hook or shackle.
- e. Body and Keeper: heat-treated, high strength, cast aluminum alloy as per Aluminum Association.

- f. Hardware: hot-dip galvanized steel as per ANSI/ASTM A153.
 - g. Cotter Pin: stainless-steel (302).
- 9.3. Manufacturer name, part number, strength, and clamping range shall be stamped in the clamp body.
- 9.4. A clevis-eye fitting shall be included with the item 002-13710. The body material shall be galvanized ductile iron. The eye diameter shall be 13/16" (2.1 cm), the pin diameter shall be 3/4" (1.9 cm), and the cotter pin material shall be stainless-steel.
- 9.5. Table 1: Approximate Dimensions

Item	L	H	C	K	PD	R	X
002-10393	3.88" (9.86 cm)	3.81" (9.68 cm)	-	0.88" (2.24 cm)	0.62" (1.57 cm)	-	0.69" (1.75 cm)
002-09239	11.25" (28.56 cm)	9.62" (24.43 cm)	7.38" (18.74 cm)	1.25" (3.18 cm)	0.62" (1.57 cm)	5.00" (12.70 cm)	1.06" (2.69 cm)
002-13710	14.00" (35.56 cm)	13.12" (33.32 cm)	9.50" (24.13 cm)	1.50" (3.81 cm)	0.75" (1.90 cm)	7.50" (19.05 cm)	1.44" (3.66 cm)



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

Warehouse Catalog #	Asset Suite #	Clamping Range on Conductor Size & OD	Fitting Type	Minimum Ultimate Strength	U - Bolts & Dia.	Package Per Box	Compatible Manufacturer & Model
002-10393	55911	#6 - 3/0 (6/1) ACSR 30.58 - 195.7 (7) AAAC (0.18" - 0.52")	None	8,000 lbf (35.6 kN)	1 1/2" (1.3 cm)	20	Hubbell (DE46N)
							MacLean (DA-10-N)
002-09239	54349	3/0 (6/1) - 556.6 (26/7) ACSR 195.7 (7) - 652.4 (19) AAAC (0.46" - 0.94")	None	22,000 lbf (97.9 kN)	4 1/2" (1.3 cm)	Indicated By Bidder	Hubbell (SD-86-N)
* 002-13710	57704	336.4 (26/7) - 1192.5 (45/7) ACSR 394.5 (19) - 927.2 (37) AAAC (0.710" - 1.318")	Clevis	25,000 lbf (111.2 kN)	5 5/8" (1.6 cm)	15	Hubbell (SD-130-C)
							MacLean (ADE-2526-C)

* Item 002-13710 is also used in the 38kV transmission system.

— End of Specification —



Appendix



Appendix 1: Table of Compliance

Line	Description	Pass/Fail (P/F)	Comments
1	Complies with the specification document 4350.084.		
2	Industry Standards: ANSI C119.4 & ASTM A153		
3	Tech. info. and drawings provided.		
4	AL Quadrant Clamp for ACSR & AAAC		
5	Hardware: HDG steel		
6	Body & Keeper: High Strength Cast Aluminum		
7	Cotter Pin: Stainless-Steel		
8	Manufacturer name, part number, strength, and clamping range stamped in the clamp body.		
9	Dimensions as per Table 1.		
10	Min. Ultimate Strength	002-10393: 8,000 lbf	
		002-09239: 22,000 lbf	
	As per Table 2	002-13710: 25,000 lbf	
11	Clamping Range	002-10393: 0.18" - 0.52"	
		002-09239: 0.46" - 0.94"	
	As per Table 2	002-13710: 0.710" - 1.318"	
12	U - Bolts & Diameter	002-10393: 1 x 1/2" \emptyset	
		002-09239: 4 x 1/2" \emptyset	
	As per Table 2	002-13710: 5 x 5/8" \emptyset	
13	Clevis-Eye Fitting	Body: Galvanized Ductile Iron	
		Cotter Pin: Stainless-Steel	
	002-13710	Eye Diameter: 13/16"	
		Pin Diameter: 3/4"	

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.











4350.084 Dead End Quadrant Strain Clamp, AL (12-06-24)

Final Audit Report

2024-12-10


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