



Document Title:

Dead-End Quadrant Strain Clamp for Copper Conductors

Document Type:

Specification

Engineering Type

Material Specification

Document No.:

4350.085

Department

Distribution

Version:

03

Effective Date:

Jul 19, 2024

Shared document with: N/A

**Select the Departments impacted by the document*

For others, specify here

Author

Miguel J. Rios López, PE (Lic. 16636)
General Engineer, Distribution Standards & Materials

Signature and Date

Jul 19, 2024

Reviewer

Rodolfo A. Flores Ortiz, PE (Lic. 27131)
General Engineer, Distribution Standards & Materials

Signature and Date

Jul 19, 2024

Approver

Ricardo Castro Gómez, PE (Lic. 12135)
Manager, Distribution Standards & Materials

Signature and Date

Jul 19, 2024

Management Approval (If apply)

Approver

Name
Position

Signature and Date

N/A

Related/Referenced Documents

N/A

Version History

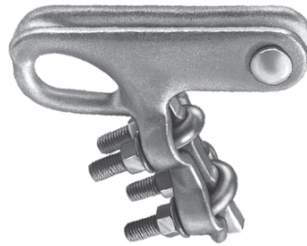
Version	Date	Revision Comments
1	Sep. 29, 2021	PREPA to LUMA Format for Item 002-02366.
2	May. 18, 2022	New Item created (002-83037 and Table of Compliance (TOC) added.
3	Jul. 19, 2024	General format modifications, TOC updated, Section 4 modified, and sections order rearranged.



Document Title: Dead-End Quadrant Strain Clamp
for Copper Conductors
Document No.: 4350.085
Department: Distribution

Item Version History

Warehouse Catalog #	Asset Suite #	Version	Date
002-02366	55362	8	7/19/2024
002-83037	83037	2	7/19/2024



1. Introduction

This is a general specification that covers the minimum requirements for hot dip galvanized dead end quadrant strain clamps 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 2. 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.

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)

As per Table 2 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. 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 A36: For carbon steel shapes, plates, and bars of structural quality for use in riveted, bolted, or welded construction of bridges and buildings, and for general structural purposes.
 - c. ASTM A153: For hot dip galvanized process on iron and steel hardware.
- 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.

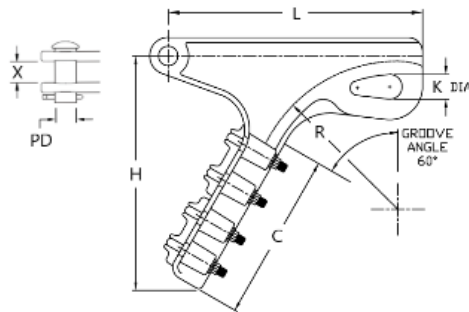
9. Description

- 9.1. Used for clamping copper conductors on horizontal or vertical mounting line post insulators.
- 9.2. The galvanized ductile iron dead-end quadrant strain clamp 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 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: hot dip galvanized high steel strength, as per ANSI/ASTM A153, or ductile iron.

- f. Hardware: hot-dip galvanized steel as per ANSI/ASTM A153.
- g. Cotter Pin: self-locking stainless-steel (302) humped type.

9.3. Table 1: Approximate Dimensions

Item	L	H	C	K	PD	R	X
002-02366	6.00" (15.24 cm)	5.50" (13.97 cm)	4.38" (11.12 cm)	1.12" (2.84 cm)	0.62" (1.57 cm)	-	0.62" (1.57 cm)
002-83037	10.75" (27.30 cm)	10.62" (26.97 cm)	8.44" (21.43 cm)	1.25" (3.18 cm)	0.62" (1.57 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

Item	Warehouse Catalog #	Asset Suite #	Clamping Range & Conductor OD	Fitting Type	Minimum Ultimate Strength	U - Bolts & Diameter	Package Per Box	Suggested Manufacturer & Model
1	002-02366	55362	#6 - 4/0 (0.18" - 0.52")	None	14,000 lbf (62.28 kN)	2 1/2" (1.27 cm)	25	Hubbell (SWDE46N)
								MacLean (FQD-58-2)
2	002-83037	83037	2/0 - 500 (0.36" - 0.84")	None	25,000 lbf (111.20 kN)	4 1/2" (1.27 cm)	Indicated By Bidder	Hubbell (SWDE-84-N)
								MacLean (FQD-68-3)

— End of Specification —



Appendix

Appendix 1: Table of Compliance

Line	Description	Pass/Fail (P / F)	Comments
1	The Proponent complies with the specification document 4350.083.		
2	The Proponent complies with the industry standards established in the specification document. (ANSI/ASTM)		
3	Tech. info., tests & drawings provided.		
4	Hardware: hot dip galvanized steel		
5	Body & Keeper: hot dip galvanized high steel strength or ductile iron.		
6	Cotter Pin: Self-locking stainless steel 302 humped type.		
7	Hot dip galvanizing procedure as per ASTM A153.		
8	Pulling eye for come-along hook or shackle.		
9	Dimensions as per Table 1.		
10	Min. Ultimate Strength	Shall be stamped on clamp body. • 002-02366: 14,000 lbf • 002-83037: 25,000 lbf	
11	Clamping Range	Shall be stamped on clamp body. • 002-02366: #6 - 4/0 • 002-83037: 2/0 - 500	
12	U - Bolts & Diameter	• 002-02366: 2 & 1/2" dia. • 002-83037: 4 & 1/2" dia.	

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.










4350.085 Dead End Quadrant Strain Clamp, CU (7-19-24)

Final Audit Report

2024-07-19

Created:	2024-07-19
By:	Miguel Rios (miguel.rioslopez@lumapr.com)
Status:	Signed
Transaction ID:	CBJCHBCAABAAQNaCPI4CiMpPe3SBligKx-4sDIWtcSUV

"4350.085 Dead End Quadrant Strain Clamp, CU (7-19-24)" History

-  Document created by Miguel Rios (miguel.rioslopez@lumapr.com)
2024-07-19 - 6:53:16 PM GMT
-  Document emailed to Miguel Rios (miguel.rioslopez@lumapr.com) for signature
2024-07-19 - 6:53:22 PM GMT
-  Document e-signed by Miguel Rios (miguel.rioslopez@lumapr.com)
E-signature obtained using URL retrieved through the Adobe Acrobat Sign API
Signature Date: 2024-07-19 - 6:53:41 PM GMT - Time Source: server
-  Document emailed to Rodolfo Flores (rodolfo.floresortiz@lumapr.com) for signature
2024-07-19 - 6:53:42 PM GMT
-  Email viewed by Rodolfo Flores (rodolfo.floresortiz@lumapr.com)
2024-07-19 - 7:17:43 PM GMT
-  Document e-signed by Rodolfo Flores (rodolfo.floresortiz@lumapr.com)
Signature Date: 2024-07-19 - 7:17:58 PM GMT - Time Source: server
-  Document emailed to Ricardo Castro (ricardo.castro@lumapr.com) for signature
2024-07-19 - 7:17:59 PM GMT
-  Email viewed by Ricardo Castro (ricardo.castro@lumapr.com)
2024-07-19 - 7:33:36 PM GMT
-  Document e-signed by Ricardo Castro (ricardo.castro@lumapr.com)
Signature Date: 2024-07-19 - 7:33:44 PM GMT - Time Source: server

✔ Agreement completed.

2024-07-19 - 7:33:44 PM GMT