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Alumoweld (AW) Messenger Wire

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Related/Referenced Documents

N/A

Version History

Version	Date	Revision Comments
01	Nov. 18, 2021	PREPA to LUMA Format for Item 042-00903.
02	Feb. 23, 2022	Item 046-00235 included, and document name changed.
03	Nov. 20, 2023	General format modifications. Table of Compliance (TOC) added. Item 046-00235 removed, and document name changed.
04	Jan. 18, 2024	Section 8 and TOC modified.
05	Feb. 05, 2025	General format modifications, TOC updated, Sections 3, 4 and 8 modified, and sections order rearranged. New Item added (042-86889).



Item Version History

Warehouse Catalog #	Asset Suite #	Version	Date
042-00903	37634	11	02/05/2025
042-86889	86889	1	02/05/2025



1. Introduction

This is a general specification that covers the minimum requirements for an alumoweld (AW) messenger wire 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

- 2.1. Samples shall be furnished as requested by LUMA Energy. Vendors that have supplied this material to LUMA on previous orders will not have to furnish samples at the bid opening. If any material or design changes were made to an approved product, the vendor must re-submit a sample to the material specification engineer for approval before shipping. 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.
- 2.2. The vendor shall submit two (2) quotes: one for conductors on steel reel and another for conductors on wood reel. See detail of reels in section 6.

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 suppliers/manufacturers and models 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. Cable reels shall be marked outside with LUMA Energy's purchase order, item number, description of wire & specification date, code name, net length & size, net & gross weights, and manufacturer's name & lot/production number.
- 5.2. 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. The conductors shall be shipped in non-returnable new reels of continuous conductor. Conductors won't be accepted by sections.
- 6.3. Wood reels shall be made of treated wood conforming with AWPA (U1 & T1-17), with a retention of 0.3 lbs./cu ft (4.81 kg/cu m) of pentachlorophenol or chromated-copper-arsenate (CCA).
- 6.4. Treatment material shall comply with AWPA P9.
- 6.5. Steel reels shall consist of a high-pressure hot phosphate wash and bonding agent finish, zinc chromate-iron oxide primer, and a final enamel coat to provide the necessary extra durability.
- 6.6. Reels shall have a minimum arbor hole diameter of 2.5" (6.35 cm).
- 6.7. Each end of the conductor shall be firmly and properly secured to reel.
- 6.8. Reels shall be protected against damage in ordinary handling and shipping.
 - a. Manufacturers shall protect the upper layers with pieces of wood along the transverse section of the reel for conductor protection NEMA level 2 wrapping of protective material.
 - b. Manufacturers shall protect conductor ends from water entrance or damage by means of an adequate seal.
- 6.9. Other types of reels will be evaluated by Luma Energy.

7. Number Per Package (Logistics)

Standard package as per Table 1 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 B416: For bare concentric-lay-stranded conductors made from bare, hard-drawn, round, aluminum-clad steel wires for general use of electrical purposes.
 - b. AWPA P9: For solvents and formulations for organic preservative systems.
 - c. AWPA U1 & T1: For wood treatment.
 - d. NEMA WC 26: Binational Wire and Cable Packaging Standard
- 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. The alumoweld (AW) wire is used in construction and maintenance for overhead ground/neutral and as a supporting element for a suspended spacer cable system.
- 9.2. Shall be suitable for high corrosive environments.
- 9.3. Shall consist of concentric lay stranded hard-drawn aluminum-clad steel strands as per ASTM B416.
- 9.4. The minimum cladding thickness of the aluminum-clad steel wire shall be 10% of the wire radius.
- 9.5. The cladding shall have a continuous strong metallic bond to the steel core to avoid cracking or flaking.
- 9.6. For physical and electrical characteristics see Table 1.

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. Warranty

The conductor/cable shall be designed and manufactured to provide a minimum life expectancy of 40 years. The supplier/manufacturer shall guarantee that each part of the finished cable has been manufactured in accordance with the requirements of the referenced specifications and standards. The supplier/manufacturer shall agree to replace any length of conductor for two years after the date of delivery if defective material or workmanship is found during installation or if the cable fails from normal use during its first year of service free of cost for the purchaser. In either case, the supplier/manufacturer shall be given a reasonable opportunity to inspect such defects or failures. A technical report detailing the cause(s) of the defect and the corrective measures implemented to prevent recurrence shall be provided upon request of the purchaser.

12. Proposal Information

12.1. Submitted proposals must include:

- a. Technical information, tests, and drawings.
- b. Table of Compliance completed by the bidder with reference (see Appendix 1).

13. Table 1: Warehouse and Asset Suite Identification Number

Warehouse Catalog #	Asset Suite #	Wire Size	Breaking Strength	Ampacity	Strands & Diameter	Approx. Overall Diameter	Weight lbs/kft (kg/km)	Package (ft/reel)	Compatible Manufacturer & Model
042-00903	37634	7 #7	19,060 lbf (85 kN)	210	7 0.1327" (3.37 mm)	0.433" (11.0 mm)	330.0 (492)	5,000	AFL
042-86889	86889	19 #8	43,240 lbf (192 kN)	315	19 0.1443" (3.66 mm)	0.642" (16.3 mm)	713.5 (1,064)	2,500	AFL

— End of Specification —



Appendix



Appendix 1: Table of Compliance

Line	Description	Pass/Fail (P / F)	Comments
1	Complies with document 4350.064.		
2	Industry standards: ASTM B416, AWPA (P9, U1 & T1), NEMA WC-26.		
3	Tech. info., tests, and drawings provided.		
4	AW (Alumoweld): Hard-Drawn Aluminum-Clad Steel Strands		
5	Suitable for corrosive environments.		
6	Concentric Lay Stranded		
7	Minimum Cladding Thickness: 10% of the wire radius.		
8	Size & Strands as per Table 1.		
9	OD as per Table 1.		
10	Ampacity as per Table 1.		
11	Breaking Strength as per Table 1.		
12	Weight as per Table 1.		
13	Package as per Table 1.		
14	Quote on steel reel and wood reel provided.		

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.











4350.064 Alumoweld (AW) Messenger Wire (2-5-25)

Final Audit Report

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