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Square Head Machine Bolts Hot Dip Galvanized

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1

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Document History

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Aug. 10, 2023	General format modifications. Document changed as shared between T&D for items 002-01566 and 002-01541.

Warehouse Catalog #	Version	Date
002-82918	4	08/10/2023
002-82919	4	08/10/2023
002-82920	4	08/10/2023
002-82921	4	08/10/2023
002-82922	4	08/10/2023
002-01483	4	08/10/2023
002-82642	4	08/10/2023
002-01525	4	08/10/2023
*002-01541	4	08/10/2023
*002-01566	4	08/10/2023
002-82411	4	08/10/2023
002-82641	4	08/10/2023
002-82412	4	08/10/2023
002-59056	4	08/10/2023
002-82413	4	08/10/2023



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1. Introduction

This is a general specification that covers the minimum requirements for the bolt (1/2, 5/8, and 3/4 in.) square head machine galvanized with square nut to be 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 material.

2. Special Requirements

Samples shall be furnished as requested by LUMA Energy. Vendors that have supplied this material to PREPA / LUMA on previous orders, will not have to furnish samples at bid opening. The 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 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. For products described in this specification as requiring qualification, awards will be made only for such products that, prior to the time for opening of bids, had been tested and/or approved by LUMA. Evidence of PREPA's and/or LUMA Energy's approval of the equipment or material shall be supplied by vendor if requested by LUMA Energy.

4. Markings

- 4.1. Containers shall be marked outside with LUMA Energy's purchase order, item number, name and size, net and gross weight, manufacturer's name, and lot number.
- 4.2. Packaging labels and tags shall be waterproof.

5. Compatible with

- 5.1. Hubbell Power Systems - see Table 1 for specific catalog number.
- 5.1. 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.



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6. Packaging

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.

7. Number Per Package (Logistics)

Fifty (50) per carton or as required by LUMA Energy.

8. Acceptance Criteria

8.1. Test required: certified by external laboratories.

8.2. Latest applicable codes, standards, and other regulations: ASTM (A307, A153)-IEEE (C135.1)-ASTM (E380)

9. Description

9.1. Table 1: Dimensions

LUMA Warehouse Number	Asset Suite Number	Diameter Inches (cm)	Threads per inch	Length Inches (cm)	Min. Thread Length Inches (cm)	Catalog Number
002-82918	82918	1/2 (1.27)	13	8 (20.32)	4 (10.16)	8708
002-82919	82919	1/2 (1.27)	13	10 (25.40)	4 (10.16)	8710
002-82920	82920	1/2 (1.27)	13	12 (30.48)	4 (10.16)	8712
002-82921	82921	1/2 (1.27)	13	14 (35.56)	6 (15.24)	8714
002-82922	82922	1/2 (1.27)	13	16 (40.64)	6 (15.24)	DF2B16



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LUMA Warehouse Number	Asset Suite Number	Diameter Inches (cm)	Threads per inch	Length Inches (cm)	Min. Thread Length Inches (cm)	Catalog Number
002-01483	54343	5/8 (1.59)	11	8 (20.32)	4 (10.16)	8808
002-82642	82642	5/8 (1.59)	11	10 (25.40)	6 (15.24)	8810
002-01525	54344	5/8 (1.59)	11	12 (30.48)	6 (15.24)	8812
*002-01541	54345	5/8 (1.59)	11	14 (35.56)	6 (15.24)	8814
*002-01566	54346	5/8 (1.59)	11	16 (40.64)	6 (15.24)	8816
002-82411	82411	3/4 (1.91)	10	8 (20.32)	4 (10.16)	8908
002-82641	82641	3/4 (1.91)	10	10 (25.40)	6 (15.24)	8910
002-82412	82412	3/4 (1.91)	10	12 (30.48)	6 (15.24)	8912
002-59056	59056	3/4 (1.91)	10	14 (35.56)	6 (15.24)	8914
002-82413	82413	3/4 (1.91)	10	16 (40.64)	6 (15.24)	8916

*These items are also used in the 38kV transmission system.

- 9.2. The dimensions of semicone point for the bolt shall have a length of point of approximate 1/4-inch (0.635 cm) beyond the last thread and approximate angle of 60 degrees.
- 9.3. The thread end of bolts not requiring semicone points, shall be chamfered or rounded bolts and nuts conform with IEEE standard C135.1 – 1999.
- 9.4. Shal be provided with corresponding square nut of the same material.
- 9.5. The top of nuts shall be flat and chamfered. It shall also be equal to the maximum width across flat, within a tolerance of 15%.
- 9.6. The nut and bolt shall be made so that the nut can run the entire length of the thread without the use of tools in accordance with IEEE standard C135.1 – 1999.
- 9.7. The bolts should be Grade A, according to its tensile strength as per ANSI/ASTM A-307.
- 9.8. Material: Hot-Dip galvanized structural steel in accordance with ANSI/ASTM A-307 and A-153.
- 9.9. Minimum tensile strength:
 - a. 1/2 inch: 7,800 LBF (55.2 KN)
 - b. 5/8 inch: 12,400 LBF (55.2 KN)



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c. 3/4 inch: 18,350 LBF (81.6 KN)

9.10. Stress area:

a. 1/2 inch: 0.141 square in. (0.91 sq. cm)

b. 5/8 inch: 0.226 square in. (1.46 sq. cm)

c. 3/4 inch: 0.334 square in. (2.15 sq. cm)

10. Inspection

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 would not prevent subsequent rejection if such materials were found later to be defective.

11. Proposal Information

11.1. Submitted proposals must include:

a. Technical information

b. Table of Compliance completed by the bidder with reference. (See Appendix 1)

— End of Specification —



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Appendix



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Appendix 1: Table of Compliance

Line	Criteria	Description	Pass/Fail (P/F)	Comments
1	Specification	The Proponent complies with the corresponding specification document.		
2	Industry Standards	The Proponent complies with the industry standards established in the specification document. (ASTM, IEEE)		
3	Length	Length in inches.		
4	Diameter	Diameter in inches. 1/2 in, 5/8 in., or 3/4 in.		
5	Material	Hot Dip Galvanized		
6	Threads per inch	13 for 1/2 inch diameter, 11 for 5/8 inch diameter, 10 for 3/4 inch per diameter		
7	Min. Tensile Strength	7,800 LBF for 1/2 inch, 12,400 LBF for 5/8 inch diameter and 18,350 LBF for 3/4 inch diameter		
8	Stress Area	0.141 sq. inch for 1/2 inch diameter, 0.226 sq. inch for 5/8 inch diameter, and 0.334 sq. inch for 3/4 inch diameter		
9	Square Nut Provided	The Proponent provides the corresponding square nut for the bolt supplied.		

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08-14-2023


Final Audit Report

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