



Equipment Specification

Document No.: 4350.073

Originating Department: Distribution Engineering



## **BOLT SQUARE HEAD MACHINE STAINLESS STEEL OR THERMAL DIFUSION GALVANIZED (TDG)**

---

### **1. Introduction**

This is a general specification that covers the minimum requirements for the stainless-steel or TDG bolt (1/2, 5/8 and 3/4 in.) square head machine with square nut 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 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. Quantity/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. Equal or Approved Equal to**

For suggested manufacturer and model see Table 1.



**Equipment Specification**

Document No.: 4350.073

Originating Department: Distribution Engineering

**BOLT SQUARE HEAD MACHINE  
STAINLESS STEEL OR THERMAL  
DIFUSION GALVANIZED (TDG)**

---

**6. Packaging**

The equipment shall be packed with nuts already assembled. 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)**

Twenty-five (25) 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:

- a. ASME B1.1 – Standard for the thread form, series, class, allowance, tolerance, and designation for unified screw threads.
- b. ASME B18.2.2 - Standard for the complete general and dimensional data for the various types of inch series square and hex nuts, including machine screw nuts and coupling nuts
- c. ASTM F593 – Standard specification for stainless steel bolts, hex cap screws, and studs.
- d. ASTM F594 - Standard specification for stainless steel nuts
- e. ASTM A380/A380M – Standard practice for cleaning, descaling, and passivation of stainless-steel parts, equipment, and systems.
- f. IEEE C135.1 - Standard for zinc-coated steel bolts and nuts for overhead line construction.
- g. ASTM A1059 - Standard specification for zinc alloy thermo-diffusion coatings (TDC) on steel fasteners, hardware, and other products.



**Equipment Specification**

Document No.: 4350.073

Originating Department: Distribution Engineering

**BOLT SQUARE HEAD MACHINE  
STAINLESS STEEL OR THERMAL  
DIFUSION GALVANIZED (TDG)**

**9. Description**

9.1. Table 1: Dimensions

LUMA Warehouse Number	Asset Suite #	Diameter Inches (cm)	Threads per inch	Length (inches)	Min. Thread Length Inches (cm)	Manufacturer	Catalog Number
<b>Stainless Steel 1/2 In Diameter Square Head Machine Bolt</b>							
002-82923	82923	1/2 (1.27)	13	10 (25.40)	6 (15.24)	Coastal Line Products Hubbell	60602100 8710TDG
002-82924	82924	1/2 (1.27)	13	16 (40.64)	6 (15.24)	Coastal Line Products	60602160

LUMA Warehouse Number	Asset Suite #	Diameter Inches (cm)	Threads per inch	Length (inches)	Min. Thread Length Inches (cm)	Manufacturer	Catalog Number
<b>Stainless Steel 5/8 In Diameter Square Head Machine Bolt</b>							
002-13637	57697	5/8 (1.59)	11	8 (20.32)	4 (10.16)	Coastal Line Products Hubbell	60603080 8808TDG
002-82643	82643	5/8 (1.59)	11	10 (25.40)	6 (15.24)	Coastal Line Products Hubbell	60603100 8810TDG
002-13645	57698	5/8 (1.59)	11	12 (30.48)	6 (15.24)	Coastal Line Products Hubbell	60603120 8812TDG
002-13660	57700	5/8 (1.59)	11	14 (35.56)	6 (15.24)	Coastal Line Products Hubbell	60603140 8814TDG
002-13678	57701	5/8 (1.59)	11	16 (40.64)	6 (15.24)	Coastal Line Products Maclean Power Systems	60603160 J8814T



**Equipment Specification**

Document No.: 4350.073

Originating Department: Distribution Engineering

**BOLT SQUARE HEAD MACHINE  
STAINLESS STEEL OR THERMAL  
DIFUSION GALVANIZED (TDG)**

---

LUMA Warehouse Number	Asset Suite #	Diameter Inches (cm)	Threads per inch	Length (inches)	Min. Thread Length Inches (cm)	Manufacturer	Catalog Number
<b>Stainless Steel 3/4 In Diameter Square Head Machine Bolt</b>							
002-82405	82405	3/4 (1.91)	10	8 (20.32)	4 (10.16)	Coastal Line Products Hubbell	60604080 8908TDG
002-82644	82644	3/4 (1.91)	10	10 (25.40)	4 (10.16)	Coastal Line Products Hubbell	60604100 8910TDG
002-82406	82406	3/4 (1.91)	10	12 (30.48)	6 (15.24)	Coastal Line Products Hubbell	60604120 8912TDG
002-82407	82407	3/4 (1.91)	10	14 (35.56)	6 (15.24)	Coastal Line Products Hubbell	60604140 8914TDG
002-82408	82408	3/4 (1.91)	10	16 (40.64)	6 (15.24)	Coastal Line Products Maclean Power	60604160 J8916T
002-82409	82409	3/4 (1.91)	10	18 (45.72)	6 (15.24)	Coastal Line Products Maclean Power	60604180 J8918T
002-82410	82410	3/4 (1.91)	10	20 (50.80)	6 (15.24)	Coastal Line Products Maclean Power	60604200 J8920T



**Equipment Specification**

Document No.: 4350.073

Originating Department: Distribution Engineering

**BOLT SQUARE HEAD MACHINE  
STAINLESS STEEL OR THERMAL  
DIFUSION GALVANIZED (TDG)**

---

- 9.2. Bolt must be furnished with cone type point.
- 9.3. Stainless steel bolts must be provided with regular stainless-steel square nut equal or similar to Coastal Line Products, model 60641000 (for 1/2 inch), 60642000 (for 5/8 inch) and 60643000 (for 3/4 inch).
- 9.4. TDG bolts must be provided with regular thermal diffusion galvanized square nut equal or similar to Hubbell, model 55083PTDG (for 1/2 inch), 55084PTDG (for 5/8 inch) and 55085PTDG (for 3/4 inch).
- 9.5. Thread length shall be as specified in Table 1 and Table 2
- 9.6. Material: 304 or 316 stainless steel conforming to ANSI/ASTM F-593, or thermal diffusing galvanized low carbon steel conforming to ASTM A-1059.
- 9.7. Minimum tensile strength:
  - a. 1/2 inch: 7,800 LBF (34.7 KN)
  - b. 5/8 inch: 12,400 LBF (55.2 KN)
  - c. 3/4 inch: 18,350 LBF (81.6 KN)
- 9.8. 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 —



**Equipment Specification**

Document No.: 4350.073

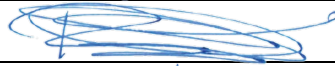
Originating Department: Distribution Engineering

**BOLT SQUARE HEAD MACHINE  
STAINLESS STEEL OR THERMAL  
DIFUSION GALVANIZED (TDG)**

---

**Document History**

<b>Version</b>	3
<b>Date</b>	05/27/2022
<b>Author</b>	Rodolfo A. Flores
<b>Reviewer</b>	Rafael Torres
<b>Approver Manager</b>	Ricardo Castro





**Equipment Specification**

Document No.: 4350.073

Originating Department: Distribution Engineering

**BOLT SQUARE HEAD MACHINE  
STAINLESS STEEL OR THERMAL  
DIFUSION GALVANIZED (TDG)**

---

**Appendix**



**Equipment Specification**

Document No.: 4350.073

Originating Department: Distribution Engineering

**BOLT SQUARE HEAD MACHINE  
STAINLESS STEEL OR THERMAL  
DIFUSION GALVANIZED (TDG)**

---

**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. 5/8 in. or 3/4 in.		
5	Material	Thermal Disffusion Galvanized, Stainless Steel		
6	Threads per inch	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.		