

Transmission & Distribution
Material & Installation Specification

Bolted Connector Assemblies

I. Quantity

The base bid shall include the indicated number of appropriate bolts, nuts, washers, lock washers and Belleville washers, anti-oxidant and other miscellaneous hardware of this type furnished and installed as hereinafter specified.

II. Material

- A. The material shall be equal in quality, design, performance, and appearance to the items specified on drawing TDMIS-23.
- B. All steel hardware to be 302 Stainless Steel.
- C. All bolts and nuts shall be hex headed unless noted otherwise.
- D. Bolts, washers, lock washers, and Belleville washers shall be coordinated with the materials being connected as follows: Copper to copper connection, use stainless steel hardware outdoors or silicon bronze hardware indoors. Copper to aluminum, use aluminum hardware and approved anti-oxidant compound. Aluminum to aluminum, use aluminum hardware.

III. Installation

- A. The installation shall be as appropriate on drawing TDMIS-23 as related to and called out on other TDMIS drawings.
- B. Size and type hardware shall not be substituted without express approval of Engineer.
- C. The bolt assemblies in table 1 of drawing TDMIS-23 can be used to bolt any combination of materials (all copper, all aluminum or any combination of copper and aluminum).

Assembly instructions:

- 1. Non-plated surfaces - thoroughly clean flat contact surfaces with a stainless steel wire brush to remove oxides, grease and dirt. Coat contact surfaces immediately with an approved corrosion inhibiting compound (table 2 in drawing TDMIS-23).

Plated surfaces – thoroughly clean flat contact surfaces with an approved solvent (do not wire brush unless the plating has become corroded) to remove grease and dirt. Coat contact surfaces immediately with a corrosion inhibiting compound (table 2 of drawing TDMIS-23). This procedure can also be used on silver plated components of manufacturer supplied equipment unless otherwise directed by the manufacturer's installation instructions.

- 2. Connections should be tightened to 360 in.-lbs. (30 ft.-lbs.). If a torque wrench is not available, connections can be tightened until the Belleville washer is flat: a noticeable increase in tightening force is experienced once the Belleville is flat.
- 3. Wipe off the excess corrosion inhibiting compound. However, a bead of compound is desirable around the surface edges to act as sealant.
- D. A Belleville washer shall be used under the bolthead. The additional stainless steel Belleville washer is provided with the 4 inch bolt assembly listed in drawing TDMIS-23.
- E. When the assemblies in table 1 of drawing TDMIS-23 are not available and the assemblies cannot be made up from individual parts in stock the following bolts can be used.
 - 1. When bolting aluminum to aluminum an aluminum bolt and nut shall be used. An aluminum flat washer shall be used under both the bolt head and nut. Tighten inhibitor lubricated bolt to 300 In.-lbs. (25 ft. - lbs.).
 - 2. When bolting copper to copper a silicon bronze bolt and nut shall be used indoor. A silicon bronze flat washer should be used under both the bolt head and the nut. Connections shall be tightened to 360 in.-lbs. (30 ft. - lbs.).
 - 3. When bolting copper to aluminum a stainless steel bolt, nut, flat washers and stainless steel Belleville washer shall be used. Connections shall be tightened

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SHEET 1 of 3		

to 360 in. lbs. (30 ft. - lbs.). Connections shall be tightened until the Belleville washer is flat: a noticeable increase in tightening force is experienced once the Belleville is flat.

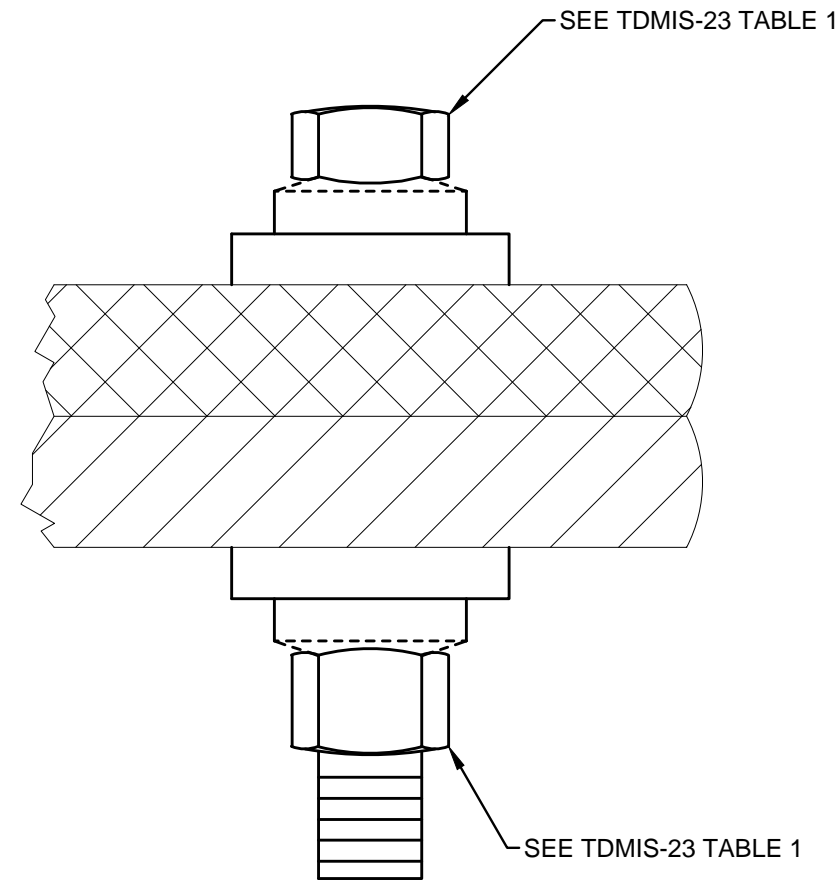
IV. Method of measurement

Shall be measured on per bolt basis. Shall include all washer, nut as described in TDMIS-23

V. Basis of payment

Items	Unit	Description
TDMIS-23	Each	__ in. __ (ss./aluminum/silicone bronze) bolt assemblies

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APPROVED: <i>[Signature]</i>		
SHEET 2 of 3		



DETAIL 1
BOLTED CONNECTOR

BOLT ASSEMBLIES

BOLT LENGTH (INCHES)	MATERIAL	PART NUMBER
2	STAINLESS STEEL	
2	SILICON BRONZE	
2	ALUMINUM	
3	STAINLESS STEEL	
3	SILICON BRONZE	
3	ALUMINUM	
4	STAINLESS STEEL	
4	SILICON BRONZE	
4	ALUMINUM	

TABLE 1
BOLT ASSEMBLIES

INHIBITOR COMPOUND FOR FLAT SURFACE JOINT AND BOLT LUBRICATION

CONDUCTOR TYPE	PART NUMBER
CU TO CU	20181
CU TO AL	20181
AL TO AL	20181

TABLE 2
INHIBITOR COMPOUND

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BOLTED CONNECTOR ASSEMBLY

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SHEET: 3 OF 3

TDMIS-23