



การไฟฟ้าส่วนภูมิภาค  
PROVINCIAL ELECTRICITY AUTHORITY

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## TECHNICAL SPECIFICATION DIVISION

### PARALLEL GROOVE CONNECTOR

Specification No.: M-2/2018

Approved date: -

Rev. No.: 1

Form No. 12-02/7.02

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Invitation to Bid No.: ๑๖.๓๑๓๑๖.(๑๖.)EB16/2565

#### C Material, equipment, and specifications for CONNECTORS AND ELECTRICAL CONTACT COMPOUND

##### C1 General material and packing instructions

Additional to the general instructions, the following shall be observed:

##### 1a Scope

These specifications cover mechanical, compression and wedge type connectors to connect conductors, and electrical contact compound.

##### 1b Standards

The connectors shall be manufactured and tested in accordance with the latest IEEE, ANSI, EEC-NEMA, ASTM, VDE Regulations and DIN, or equivalent; unless otherwise specified in these specifications.

The bodies of connectors shall be of aluminium-alloy according to manufacturer's standards, unless otherwise specified in these specifications.

##### 1c Principal requirement

##### 1c.1 General

The connectors shall be suitable for connecting stranded and/or solid conductors according to DIN, TIS, or equivalent; unless otherwise specified in these specifications.

##### 1c.2 Bolted type connector

For the purpose of against self-loosening, each bolt shall be furnished with at least of one (1) locknut. The bolts shall be designed for single-wrench installation. Each U-bolt is counted as two (2) bolts. The bolts shall be tightened to torque levels according to these shown in the table below or according to manufacturer's recommendation; the technical details of tightening torque levels shall be submitted on request.

All ferrous materials shall be hot-dip galvanized after manufacturing; except bolts, lockwashers, washers, and nuts up to M6 shall be electro galvanized; according to the relevant standards or having the thickness or zinc coating shown in the table below.



Sizes of Bolts, lockwashers, Washers, and Nuts	Tightening Torque Level of Galvanized Steel Bolts kgf-m	Minimum Thickness of Zinc Coating mm.
M 6 (1/4")	-	0.010
M 8 (5/16")	2.0	0.040
M 10 (3/8")	2.7	0.040
M 12 (1/2")	5.5	0.040
M 14 (9/16")	6.5	0.040
M 16 (5/8")	7.5	0.040
M 20 (3/4")	11.0	0.045

**1c.3 Compression type connector**

Full tension sleeves and partial tension sleeves shall withstand at least 90% and 40%, respectively, of the minimum breaking strength of the conductors for which they are designed. Each sleeve shall be prefilled with electrical contact compound and closed both ends by plastic caps.

Conductor barrel of each terminal lug shall be prefilled with electrical contact compound and closed by a plastic cap.

Tap connectors shall be prefilled with electrical contact compound and packed in suitable packages, one (1) or two (2) pieces per package.

**1c.4 Compression deadend assembly set**

The aluminium body and aluminium jumper terminal shall accommodate aluminium conductor which is according to TIS; and the conductor barrel shall be prefilled with electrical contact compound and closed by a plastic cap.

**1c.5 Wedge type connector**

The wedge type connector shall consists of C-shaped member and wedge, and made of aluminium alloys which shall be described.

The wedge type connector shall pass the current cycle tests Class A (500 cycles) in accordance with the latest EEI-TDJ-162/NEMA C3, ANSI C 119.4 or equivalent.

Bidders who have never submitted the test reports of current cycle tests shall submit either prior to receipt of bids or within fifteen (15) days of the bid closing date, for saving bid consideration time, the Item without submitting the report shall be rejected.



**1c.6 Marking**

Each connector shall be marked, on the body, at least as follows:

- (1) Applicable conductor type and size.
- (2) Manufacturer's symbol.
- (3) Marks to press, for compression type only.
- (4) Words "FULL TENSION" and "PARTIAL TENSION", on full tension sleeves and partial tension sleeves, respectively.

Except for compression type tap connectors for main line size less than 10 mm<sup>2</sup> (not including size 10 mm<sup>2</sup>), if the applicable conductor type and size cannot be marked on the bodies, the marks shall be marked on individual packages.

**1c.7 Sample**

Free samples shall be supplied on request. The samples will not be returned.

**1d Packing**

Each item shall be packed separately in suitable packages in sets or pieces of 1, 2, 100, 200, 250, or 300.

Except:

PEA Material No.	Preformed fittings	sets or pieces per package
1020300103, 1020300101	Connector, parallel groove	75
1020310001	Connector, dead-end type	100

Packages of same item may be packed together in suitable cases.

**C2 Material and packing data to be given by bidder**

**2a** For each item offered, the following details shall be submitted with the bid:

Catalogue number.

Specifications of materials used for the component parts (body, bolts, nuts, screws, lockwashers, washers, etc.).

Surface finishing of the component parts.

Nominal cross-sectional area in  $\text{mm}^2$  of conductor for which the connector is designed.

Diameter in mm of conductor for which the connector is designed.

Material of conductors for which the connector can be used (Al, ACSR, Cu, etc.).

Recommended tightening torques for bolts in kgf-m.

Weight in kg/100 sets or pieces.

**2b** It shall be advised whether the connectors should be protected by armour tape or preformed line guards, etc.

**2c** For each item offered, a drawing with dimensions in mm and marking details shall be submitted with the bid. For compression type connector, a drawing with the dimensions including inside and outside diameters and marking details shall be submitted.

**2d** Number of aluminium-alloy copper-alloy, and/or the chemical compositions of the bodies of connectors.

**2e Packing details**

Packing method.

Number of sets or pieces in each package (maximum 300 sets or pieces in one package)

Principal dimensions of each package in cm.

Volume of each package in  $\text{m}^3$ .

Gross weight of each package in kg.

Net weight of each package in kg.

Number of packages.

If several packages are contained in one big case, further details are required:

Number of packages in each case.

Principal dimensions of each case in cm.

Volume of each case in  $\text{m}^3$ .

Gross weight of each case in kg.

Number of cases.



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### C3 Schedule of detailed requirement

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Item	PEA Material No.	Quantity	Description
1	1020300101	8 ชิ้น pc(s)	<p>Connector, parallel groove, 2-bolt type, length not less than 50 mm, for electrical tap off connection of aluminium, aluminium-alloy, and ACSR conductor to aluminium, aluminium-alloy, and ACSR conductor, with:</p> <p>Main : diameter range of 4.50 mm to 11.70 mm (size 16 mm<sup>2</sup> to 70 mm<sup>2</sup>)</p> <p>Tap : diameter range of 4.50 mm to 11.70 mm (size 16 mm<sup>2</sup> to 70 mm<sup>2</sup>)</p> <p>Note :</p> <p>ให้ผู้เสนอราคาทุกรายจะต้องจัดส่งตัวอย่าง Connector จำนวน 5 ตัวอย่าง และ Compound ประมาณ 0.5 กิโลกรัม ภายใน 5 วันทำการ นับถัดจากวันเสนอราคา</p>
III			



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TECHNICAL SPECIFICATION DIVISION**

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PROVINCIAL ELECTRICITY AUTHORITY

**Specification No.: M-2/2018 : PARALLEL GROOVE CONNECTOR**

**C4 Price schedule**

**Invitation to Bid No.:** *৯৯৩৭৯৭৭. (০৬১) EB ১৬/২৫৬৫*

**Manufacturer :**  
**Country of origin :**  
**Trade-mark :**

Item	PEA Material No.	Catalogue No.	Description	Quantity	Unit Cost (See details & conditions attached)	Total Cost (See details & conditions attached)
1	1020300101		Connector, parallel groove, 2-bolt type, length not less than 50 mm, for electrical tap off connection of aluminium, aluminium-alloy, and ACSR conductor to aluminium, aluminium-alloy, and ACSR conductor, with: Main : diameter range of ..... mm to ..... mm Tap : diameter range of ..... mm to ..... mm	<i>১৬৬</i> pc(s)		
	III					