

**C Material, equipment, and specifications for AERIAL CABLE CORNER SUPPORT BRACKET AND ACCESSORIES**

**C1 General material and packing instructions**

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

**1a Scope**

These specifications describe the requirement of the aerial cable corner support bracket and accessories which used for 22 kV and 33 kV distribution systems.

**1b Standards**

The channel steel used for brackets shall be manufactured and tested in accordance with the following standard:

TIS 1227-2558 Hot rolled structural steel sections, Table 4

The steel plate used for brackets shall be manufactured and tested in accordance with the following standard:

TIS 1499-2563 Hot-rolled flat steel for welded structure, or

TIS 1479-2558 Hot-rolled flat steel for general structure

And all other relevant standards, unless otherwise specified in these specifications.

PEA will also accept the channel steel and steel plate manufactured and tested in accordance with the later edition of the above standards.

**1c Principal requirement**

**1c.1 General**

The aerial cable corner support bracket and messenger ground wire bayonet bracket shall be according to **Drawing No. SB3-015/64002** and **Drawing No. SB3-015/64003** respectively.

**1c.2 Material**

The channel steel and steel plate, used for brackets, shall be SM400 or SS400 grade.

Certifications or test reports, from third party laboratories or from steel manufacturer, of the channel steel and steel plate used in each production batch or lot shall be submitted with the bid.

The aerial cable corner support bracket and messenger ground wire bayonet bracket shall be galvanized in accordance with ASTM A123. The Average thickness of galvanized on any part of the aerial cable corner support bracket and messenger ground wire bayonet bracket shall be not less than 85  $\mu\text{m}$ .



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## PROVINCIAL ELECTRICITY AUTHORITY

### ELECTRICAL AND MECHANICAL ENGINEERING DIVISION

#### AERIAL CABLE CORNER SUPPORT BRACKET AND ACCESSORIES

Specification No.: RHDW-032/2564

Approved date: 1 DEC 2021

Rev. No.: 01

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#### 1c.3 Marking

Each aerial cable corner support bracket and messenger ground wire bayonet bracket shall be marked by mean of emboss on the body at least listed below. Except purchase order number shall be marked by means of engraving, stamping or laser marking on the body.

- (1) Marking "PEA"
- (2) Manufacturer's name or Trademark
- (3) Steel grade
- (4) Purchase order number

#### 1d Packing

The aerial cable corner support bracket and messenger ground wire bayonet bracket shall be packed by the method and quantity which specified in **Table 1** below.

**Table 1: Packing Detail**

Item	Equipment	PEA's material No.	Packing method	Quantity per bundle (maximum)	Number of bundles per pallet (maximum)
1	Aerial cable corner support bracket, for 22 kV distribution system	1020440112	Bundle	25	2
2	Aerial cable corner support bracket, for 33 kV distribution system	1020440121	Bundle	25	2
3	Messenger ground wire bayonet bracket	1020440122	Bundle	25	2

**Note:**

1. Bundle packing by using galvanized steel wires with diameter of not less than 4 mm.
2. Pallets supplied to PEA shall have dimension not more than 1.1 m x 1.1 m (Width x Length) and the total height after containing the package/cases shall be less than 1.5 m





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**C2 Material and packing data shall be submitted with the bid**

**2a A catalog or a detail drawing with the following details,**

- Dimensions in mm
- Description of materials used for the component parts
- Surface finishing of the component parts
- Zinc coating in  $\mu\text{m}$  ( $1 \mu\text{m} = 0.001 \text{ mm}$ )
- Weight in kg/set or piece

**In case, the bidders use the PEA's drawing, the proposal will be rejected.**

**2b Certifications or test reports, from third party laboratories or from steel manufacturer, of the channel steel and steel plate used in each production batch or lot**

**2c Packing details, as least the following details,**

- Packing method
- Number of sets or pieces in each package
- Dimensions of each package in cm
- Gross weight of each package in kg

**Note:** Critical documents of the aerial cable corner support bracket and accessories (See **Page 4 of 4**). The lists of documents shall be fulfilled and submitted with the bid.





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#### Critical documents shall be submitted with the bid

(Please fill/check the boxes in each item)

No	Required technical document	Proposed technical document	Reference document (Folder/Page No.)
1	A catalog or a detail drawing with a specified detail (See 2a)	<input type="checkbox"/> Yes <input type="checkbox"/> No	
2	Certifications or test reports, from third party laboratories or from steel manufacturer, of the channel steel and steel plate used in each production batch or lot	<input type="checkbox"/> Yes <input type="checkbox"/> No	
3	Packing details (see 2c)	<input type="checkbox"/> Yes <input type="checkbox"/> No	

**Note:** All critical documents mentioned above shall be submitted with the bid; otherwise, the proposal will be rejected.





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# PROVINCIAL ELECTRICITY AUTHORITY

## ELECTRICAL AND MECHANICAL ENGINEERING DIVISION

Specification No.: RHDW-032/2564: AERIAL CABLE CORNER SUPPORT BRACKET AND ACCESSORIES

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### C3 Schedule of detailed requirement

Invitation to Bid No.:

Item	PEA Material No.	Quantity	Description
1	1020440112	set(s)	Aerial cable corner support bracket, for 22 kV distribution system, see Drawing No. <b>SB3-015/64002</b> .
2	1020440121	set(s)	Aerial cable corner support bracket, for 33 kV distribution system, see Drawing No. <b>SB3-015/64002</b> .
3	1020440122	set(s)	Messenger ground wire bayonet bracket, see Drawing No. <b>SB3-015/64003</b> .

**Note:**  
Enclosed Drawing No. **SB3-015/64002** and Drawing No. **SB3-015/64003**.





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ELECTRICAL AND MECHANICAL ENGINEERING DIVISION**

Specification No. : RHDW-032/2564: AERIAL CABLE CORNER SUPPORT BRACKET AND ACCESSORIES

Page 1 of 1

C4 Price schedule

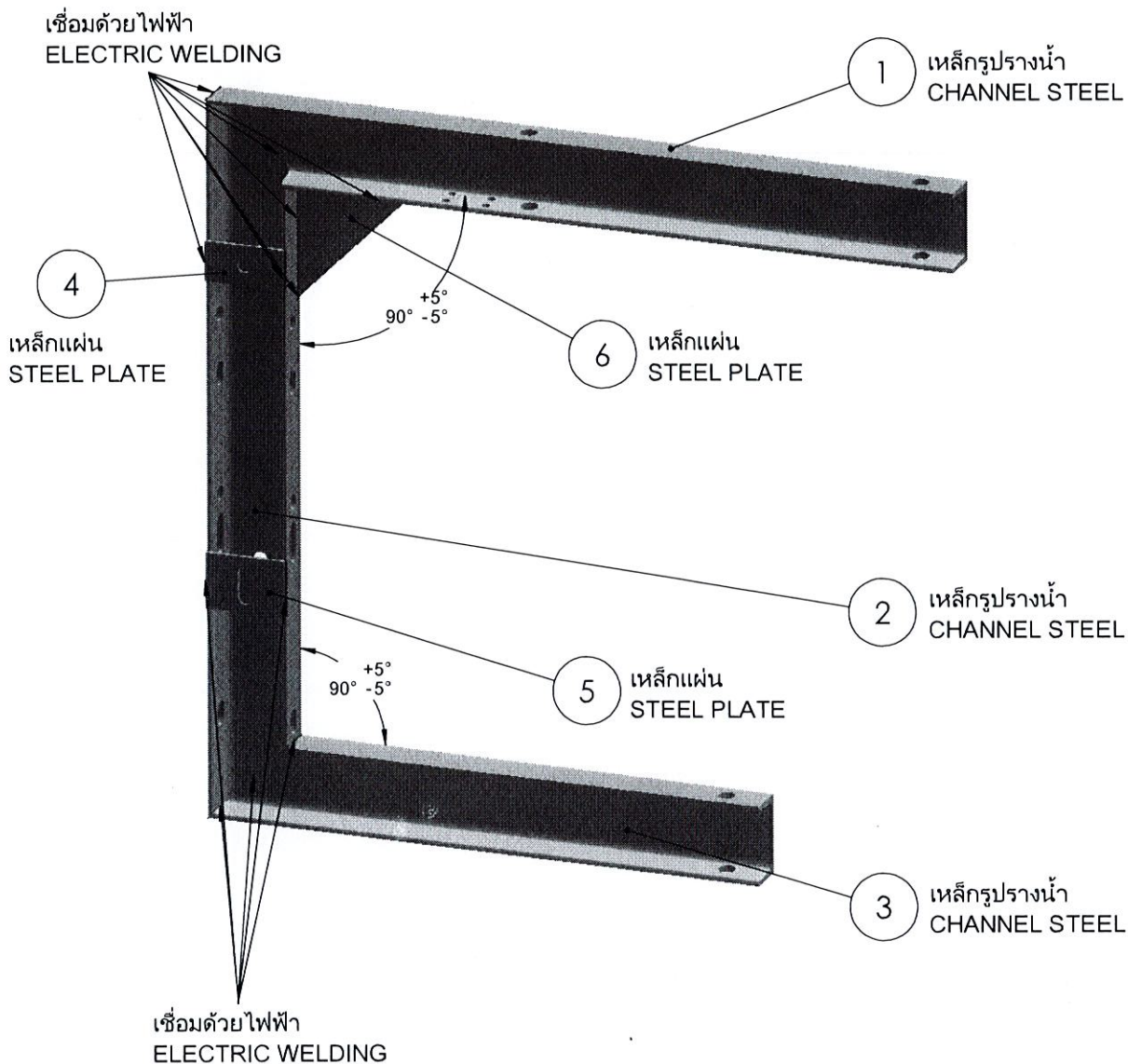
Invitation to Bid No. :

Manufacturer :  
Trade-mark :  
Country of origin :

Item	PEA Material No.	Catalogue No.	Description	Quantity	Unit Cost (See details & Condition attached)	Total Cost (See details & Condition attached)
1	1020440112	-	Aerial cable corner support bracket, for 22 kV distribution system			
2	1020440121	-	Aerial cable corner support bracket, for 33 kV distribution system			
3	1020440122	-	Messenger ground wire bayonet bracket			

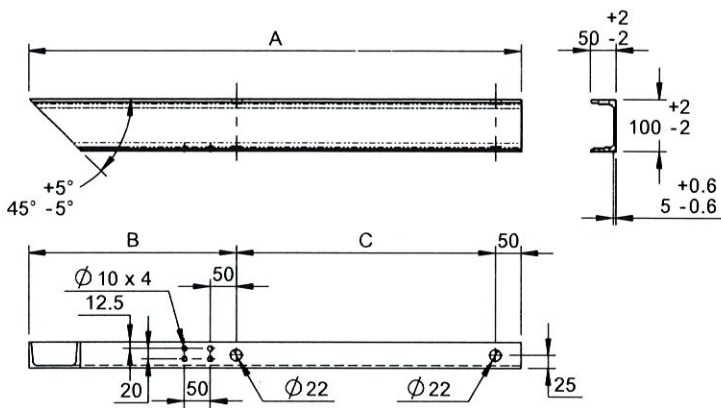


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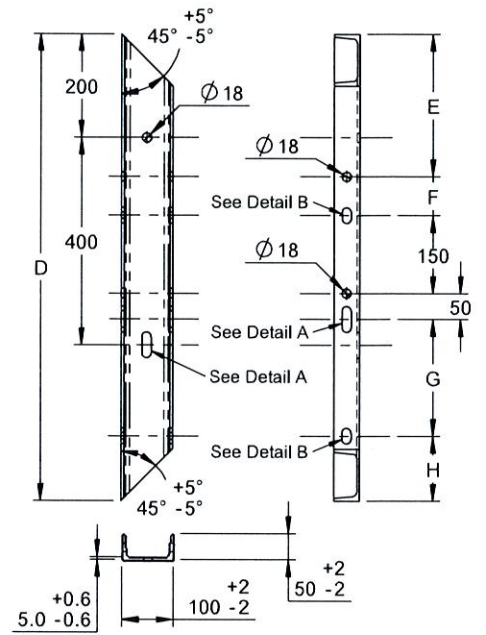


กองวิศวกรรมไฟฟ้าและเครื่องกล ฝ่ายวิศวกรรม	การไฟฟ้าส่วนภูมิภาค	ใช้แทนแบบ - ถูกแทนโดยแบบ -
ผู้เขียน สรสิทธิ์	เหล็กคอนเคเบิลอากาศทางโค้ง	เขียนเสร็จวันที่ 05 ส.ค. 2564
ผู้สำรวจ	สำหรับระบบจำหน่าย 22 kV และ 33 kV	แก้แบบวันที่ -
วิศวกร <i>ศิริวิทธิ์</i>	AERIAL CABLE CORNER SUPPORT BRACKET	มิติเป็น มิลลิเมตร
หัวหน้าแผนก <i>โอ๊ (ใหม่)</i>	FOR 22 kV AND 33 kV DISTRIBUTION SYSTEMS	มาตราส่วน not to scale
ผู้อำนวยการกอง <i>อ</i>		แบบเลขที่ SB3-015/64002
ผู้อำนวยการฝ่าย <i>วิเศษ</i>		แผ่นที่ 1 ของจำนวน 3 แผ่น

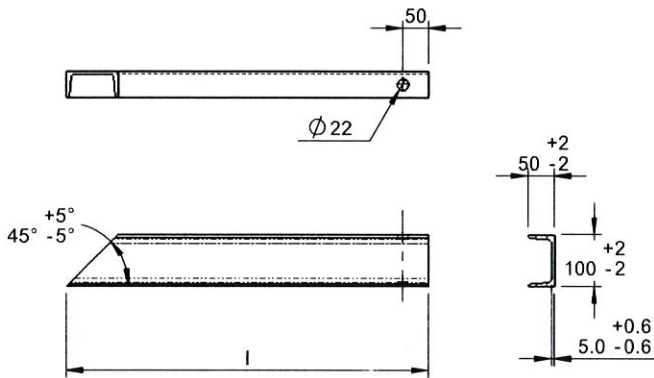
Detail ① เหล็กทรงรางน้ำ  
CHANNEL STEEL



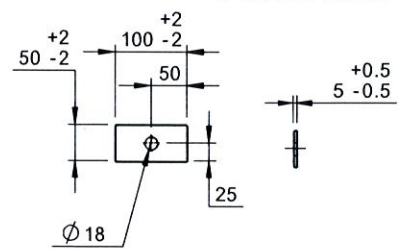
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CHANNEL STEEL



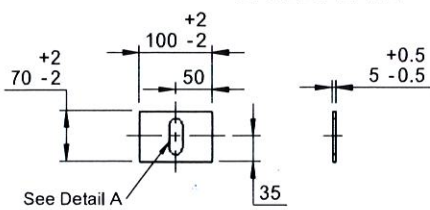
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CHANNEL STEEL



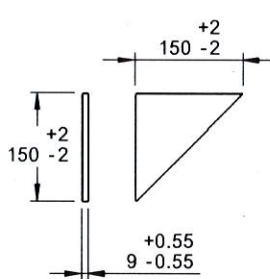
Detail ④ เหล็กแผ่น  
STEEL PLATE



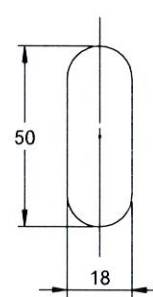
Detail ⑤ เหล็กแผ่น  
STEEL PLATE



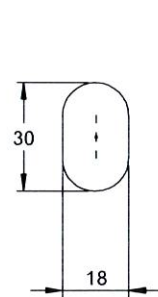
Detail ⑥ เหล็กแผ่น  
STEEL PLATE



Detail A



Detail B



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กองวิศวกรรมไฟฟ้าและเครื่องกล  
ฝ่ายวิศวกรรม  
ผู้เขียน สุรสิทธิ์  
ผู้สำรวจ  
วิศวกร  
หัวหน้าแผนก  
ผู้อำนวยการกอง  
ผู้อำนวยการฝ่าย

การไฟฟ้าส่วนภูมิภาค

เหล็กคอนเคเบิลอากาศทางโค้ง

สำหรับระบบจำหน่าย 22 kV และ 33 kV

AERIAL CABLE CORNER SUPPORT BRACKET

FOR 22 kV AND 33 kV DISTRIBUTION SYSTEMS

ใช้แทนแบบ -  
ถูกแทนโดยแบบ -  
เขียนเสร็จวันที่ 05 ส.ค. 2564  
แก้แบบวันที่ -  
มิติเป็น มิลลิเมตร  
มาตราส่วน not to scale  
แบบเลขที่ SB3-015/64002  
แผ่นที่ 2 ของจำนวน 3 แผ่น



PRELIMINARY

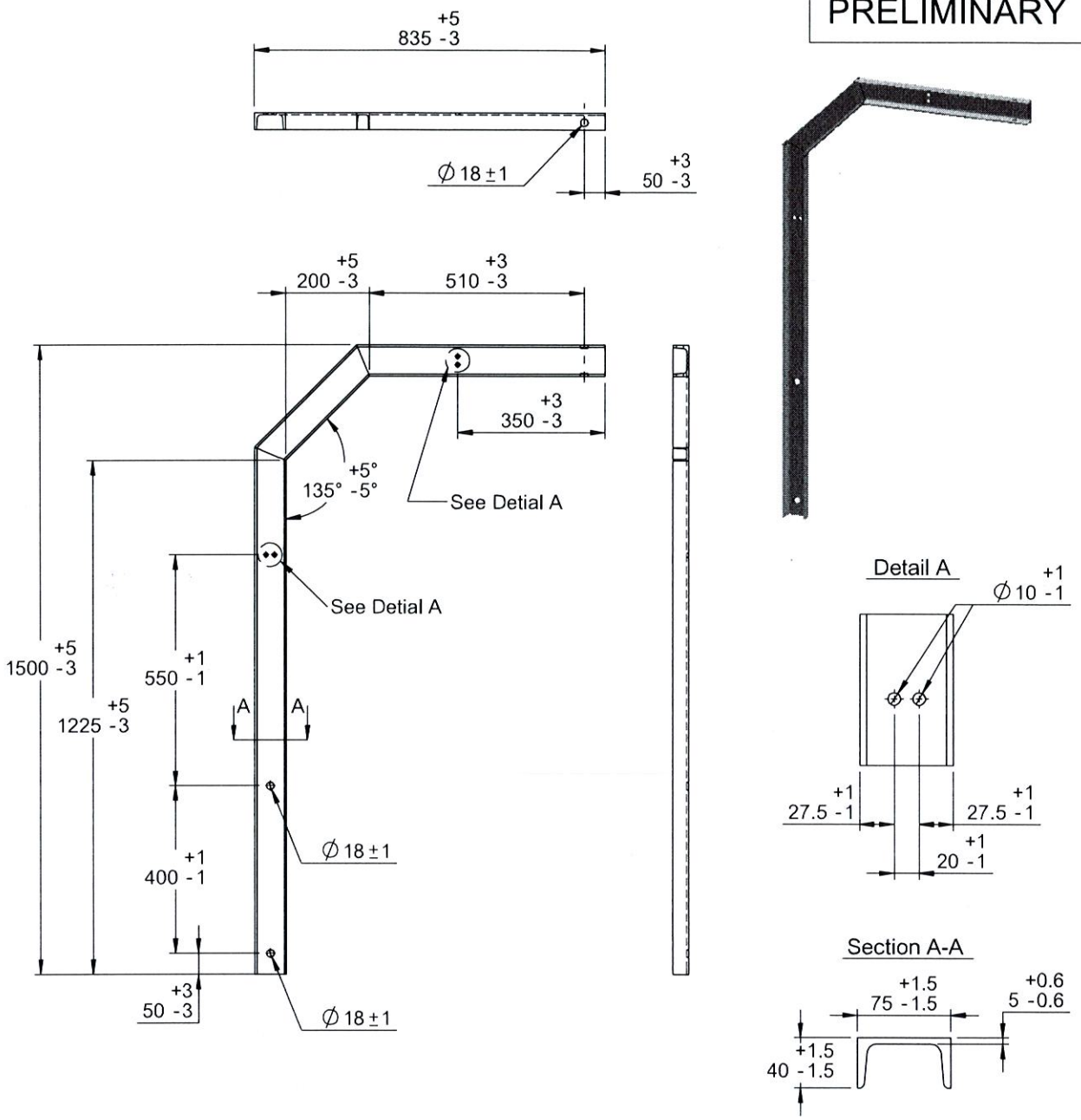
ลำดับที่ Item	รหัสวัสดุ Material No.	ขนาด (มม) SIZE (mm)									น้ำหนัก (กก) Weight (kg)
		A	B	C	D	E	F	G	H	I	
1	1020440112	950	400	500	900	275	75	225	125	700	22.9
2	1020440121	1,150	500	600	1,000	300	50	250	200	850	27.1

- หมายเหตุ : 1. กำหนดค่าความคลาดเคลื่อน (Tolerance) ของรูปร่างและมิติ (เฉพาะที่ไม่ได้ระบุไว้ในแบบ) ดังนี้
- 1.1 สำหรับระยะไม่เกิน 300 มิลลิเมตร กำหนดค่าความคลาดเคลื่อน (Tolerance) +/- 1 มิลลิเมตร
  - 1.2 สำหรับระยะ 301- 600 มิลลิเมตร กำหนดค่าความคลาดเคลื่อน (Tolerance) +/- 3 มิลลิเมตร
  - 1.3 สำหรับระยะ 601 มิลลิเมตรขึ้นไป กำหนดค่าความคลาดเคลื่อน (Tolerance) +/- 5 มิลลิเมตร
2. กำหนดค่าความคลาดเคลื่อน (Tolerance) ของน้ำหนัก +/- 0.3 กิโลกรัม
3. เหล็กรูปร่างน้ำ และเหล็กแผ่นต้องชุบสังกะสีหลังจากการประกอบ โดยให้มีความหนาเฉลี่ยของแต่ละชั้น ไม่น้อยกว่า 85 ไมครอน
4. เชื่อมเหล็กแผ่น ให้ยึดติดด้านขอบนอกของเหล็กรูปร่างน้ำ
5. ลวดเชื่อมต้องเป็นชั้นคุณภาพ E60XX หรือเทียบเท่า หรือดีกว่า
6. รอยเชื่อมมีขนาดสม่ำเสมอตลอดทั้งแนว ไม่ขาดช่วง และไม่เป็จุดไขว่ปลา



กองวิศวกรรมไฟฟ้าและเครื่องกล ฝ่ายวิศวกรรม	<b>การไฟฟ้าส่วนภูมิภาค</b>	ใช้แทนแบบ - ถูกแทนโดยแบบ -
ผู้เขียน <u>สุรสิทธิ์</u> ผู้สำรวจ วิศวกร <u>ศิริสิทธิ์</u> หัวหน้าแผนก <u>OH (11kv)</u> ผู้อำนวยการกอง <u>อ</u> ผู้อำนวยการฝ่าย <u>2/กน</u>	<b>เหล็กคอนเคเบิลอากาศทางโค้ง</b> <b>สำหรับระบบจำหน่าย 22 kV และ 33 kV</b> <b>AERIAL CABLE CORNER SUPPORT BRACKET</b> <b>FOR 22 kV AND 33 kV DISTRIBUTION SYSTEMS</b>	เขียนเสร็จวันที่ <u>05 ส.ค. 2564</u> แก้แบบวันที่ - มิติเป็น <u>มิลลิเมตร</u> มาตราส่วน <u>not to scale</u> แบบเลขที่ <u>SB3-015/64002</u> แผ่นที่ <u>3</u> ของจำนวน <u>3</u> แผ่น

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- หมายเหตุ : 1. เหล็กคอนจับยึดสายสะพาน สำหรับติดตั้งกับคอนเหล็กเคเบิลอากาศทางโค้ง รหัสพัสดุ 1020440122  
 2. น้ำหนัก 14.4 +/- 0.3 กิโลกรัม  
 3. เหล็กรูปรางน้ำ ต้องชุบสังกะสีหลังจากการประกอบ โดยให้มีความหนาเฉลี่ยของแต่ละชิ้น ไม่น้อยกว่า 85 ไมครอน  
 4. ลวดเชื่อมต้องเป็นชั้นคุณภาพ E60XX หรือเทียบเท่า หรือดีกว่า  
 5. รอยเชื่อมมีขนาดสม่ำเสมอตลอดทั้งแนว ไม่ขาดช่วง และไม่เป็จุดไขว่ปลา



กองวิศวกรรมไฟฟ้าและเครื่องกล ฝ่ายวิศวกรรม	<h2>การไฟฟ้าส่วนภูมิภาค</h2>	ใช้แทนแบบ - ถูกแทนโดยแบบ -
ผู้เขียน <u>สุรสิทธิ์</u> ผู้สำรวจ _____ วิศวกร <u>สุรสิทธิ์</u> หัวหน้าแผนก <u>(OU; 1111)</u> ผู้อำนวยการกอง <u>อ</u> ผู้อำนวยการฝ่าย <u>ปอภพ</u>	<h3>เหล็กคอนจับยึดสายสะพาน สำหรับติดตั้งกับคอนเหล็กเคเบิลอากาศทางโค้ง</h3> <p>MESSENGER GROUND WIRE BAYONET BRACKET                  FOR AERIAL CABLE CORNER SUPPORT BRACKET</p>	เขียนเสร็จวันที่ <u>05 ส.ค. 2564</u> แก้มแบบวันที่ - มิติเป็น มิลลิเมตร มาตราส่วน <u>not to scale</u> แบบเลขที่ <u>SB3-015/64003</u> แผ่นที่ <u>1</u> ของจำนวน <u>1</u> แผ่น



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# PROVINCIAL ELECTRICITY AUTHORITY

## ELECTRICAL AND MECHANICAL ENGINEERING DIVISION

### HIGH-VOLTAGE INSULATING TAPE, SELF-FUSING EPR BASED

Specification No.: RMIS-105/2564

Approved date: 24 MAY 2021

Rev. No.: 2

Form No. -

Page 1 of 9

#### Invitation to Bid No.:

#### C Material, equipment, and specifications for High-voltage insulating tape, self-fusing EPR based

#### C1 General material and packing instructions

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

#### 1a Scope

These specifications cover High-voltage insulating tape, self-fusing Ethylene Propylene Rubber (EPR) based designed for splicing and repairing of electrical wire and cables operating at voltages up to 69 kV.

#### 1b Standard

The High-voltage insulating tape, self-fusing EPR based shall be manufactured and tested in accordance with following standard:

American Society for Testing and Materials (ASTM):

ASTM D4388: 2013 Standard specification for Nonmetallic Semi-Conducting and Electrically Insulating Rubber Tapes

And all other relevant standards, unless otherwise specified in these specifications.

PEA will accept High-voltage insulating tape that manufactured and tested in accordance with the later edition of the above standards.

PEA will also accept High-voltage insulating tape manufactured and tested in accordance with the previous edition of the above standard, if there is no significant change in any test items or no additional test item(s) compared with the above standards. On the other hand, if there is significant change in any test items or there are any additional test items, the previous edition type test report with the additional test report(s) of the significant change test item(s) and/or additional test item(s) will be also accepted.

#### 1c Principal requirement

#### 1c.1 Properties

The properties of the proposed High-voltage insulating tape shall be in accordance with type three (3) classification of ASTM D 4388: 2013, or later edition, as specified in **Table 1**.





Table 1: Properties of the High-voltage insulating tape, self-fusing EPR based

Properties	Requirements	Test method
Dimension - length/roll - width - thickness	not less than 9 m* 19 mm ± 0.76 mm 0.76 mm ± 0.076 mm * The length of the tape of each roll shall be continuous.	ASTM D4325: 2013, or later edition
Tensile strength, min	1.7 MPa	
Elongation at break, min	700 %	
Dielectric strength, min	24 kV/mm	
Dissipation factor, max - after water immersion - after hot water immersion	0.05 0.05	
Permittivity, max - after water immersion - after hot water immersion	4 4	
Volume resistivity, min - 96 h at 23°C and 50 % RH - 96 h at 23°C and 96 % RH	10 <sup>14</sup> ohm-cm 10 <sup>13</sup> ohm-cm	
Fusion-Flag 2 mm, max	pass at 300 % elongation	
Ozone resistance	pass if no visible signs of cracks	
Heat exposure	pass at 130 °C	
UV resistance	Pass	

### 1c.2 Sample

The bidders shall submit at least one (1) sample for each proposed item within five (5) working days counted from bid closing date for consideration; otherwise, the proposal will be rejected.

PEA reserves the right to test the samples according to testing items and procedure specified in 1e.2. In case of the failing test results, the bidders shall be rejected.

The sample shall not be returned.



### 1c.3 Marking

The proposed High-voltage insulating tape shall be marked legibly and durably, as follows:

- (1) Name of manufacturer or trademark
- (2) Catalogue number or model
- (3) Width, thickness and length of the tape
- (4) Manufacturing date
- (5) Net weight
- (6) Purchase order number (PO), water resistance plastic sticker is acceptable.

**Noted:**

- Marking as specified in (1) shall be marked on tape core, plastic wrap and package box.
- Marking as specified in (2) to (4) shall be marked on plastic wrap and package box.
- Marking as specified in (5) and (6) shall be marked on package box.

### 1d Packing

Each High-voltage insulating tape roll shall be securely wrapped and sealed in a moisture-proof plastic and then shall be contained in a package box individually. The package boxes shall be packed in a carton box, the number of package boxes per carton box shall be not more than 50.

### 1e Tests and test reports

#### 1e.1 Type test

The High-voltage insulating tap shall pass all test items for the properties specified in **Table 1** and the tests shall be conducted or inspected by the acknowledged independent testing laboratories/institutes as follows:

- (1) Independent laboratories/institutes which are members of the Short-circuit Testing Liaison (STL) or independent laboratories/institutes which are accredited according to TIS 17025 or ISO/IEC 17025 with the scope of accreditation covered the relevant test items, standards and equipment. The certification and scope of accreditation of the independent laboratories/institutes shall be submitted with the bid for consideration.
- (2) Thailand's national laboratories, institutes, universities and electric utilities, as follow:
  - NSTDA Characterization and testing service center (NCTC)
  - Thailand Institute of Scientific and Technological Research (TISTR)
  - National Metal and Materials Technology Center (MTEC)
  - Electrical and Electronic Products Testing Center (PTEC)
  - Thai Industrial Standards Institute (TISI)
  - Electrical and Electronics Institute (EEI)
  - Department of Science Service (DSS)

HIGH-VOLTAGE INSULATING TAPE, SELF-FUSING EPR BASED

Specification No.: RMIS-105/2564

Approved date: 24 MAY 2021

Rev. No.: 2

Form No. -

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- Testing Laboratory, Electrical Engineering Department, Faculty of Engineering, Chulalongkorn University
- Electricity Generating Authority of Thailand (EGAT)
- Metropolitan Electricity Authority (MEA)
- Provincial Electricity Authority (PEA)

(3) Other laboratories as follow:

- In case the foreign manufacturers have experience of more than twenty (20) years in design, manufacture and sell High-voltage insulating tape, self-fusing EPR based, PEA will accept type test report(s) conducted by the manufacturer's laboratory or other independent laboratories without qualification mentioned in (1) or (2). Documents showing the manufacturer's experience such as reference list shall be submitted with the bid for consideration.
- The bidders or manufacturers who prefer to carry out the type tests of High-voltage insulating tape, self-fusing EPR based with other laboratories without the qualification mentioned above, the detail of laboratory and the test facilities shall be submitted to PEA for approval before proceeding the tests and before the bid closing date. PEA reserves the right to send representatives to inspect or witness the tests.

The type test reports conducted by the laboratories/institutes in Thailand or local manufacturers shall be valid within five (5) years counted from the issued date in the test report to the bid closing date.

The type test reports conducted by the laboratories/institutes in other countries shall be valid within ten (10) years counted from the issued date in the test report to the bid closing date.

**The type test reports shall include the necessary data as following:**

- (1) Brand name of the tape
- (2) The catalogue number / type or model of the tape
- (3) Colour photograph of the tape before testing
- (4) Date of issue or date of approval

**The cost of all tests and report shall be borne by the Bidders or manufacturers.**

**The type test reports shall be submitted with the bid.**

PEA will also accept other documents instead of the type test reports in the following cases:

- (1) In case the proposed High-voltage insulating tape has been sold to PEA at PEA's Procurement Department (from PEA's head office), The bidder can submit the Purchase Order (PO) on the bid closing date, or
- (2) In case the proposed High-voltage insulating tape has been registered for PEA Product Acceptance<sup>(1)</sup>, the Bidder can submit the valid registration certificate on the bid closing date, or

(3) In case the proposed High-voltage insulating tape has been registered for Product lists for transmission and substation turnkey project<sup>(2)</sup>, the Bidder can submit the valid registration certificate on the bid closing date.

However the document in case (1), (2) and (3) mentioned above shall be proved by the bidding committee that High-voltage insulating tape specified in the PO or registration certificate is the same product, type/model and all ratings as the proposed High-voltage insulating tape for this bid.

**Note:** <sup>(1)</sup> PEA Product Acceptance (PPA) is the process for enhancing quality of electrical apparatus which PEA procure by making quality control system and certification of product's quality by reliable Certification Body (CB). PPA is taken responsibility by Electrical Equipment Standard and Quality Control Division.

<sup>(2)</sup> Product lists for transmission and substation turnkey project is the process of registration of electrical apparatus used in PEA's power system. Product lists is taken responsibility by Substation Project Management Division.

**1e.2 Acceptance test**

PEA reserves the right to have an acceptance tests conducted by PEA's laboratory or acknowledge independent testing laboratories as mentioned in **1d.1** or by manufacturer's factory qualified by PEA.

**The cost of all tests shall be borne by the Contractor.**

PEA's acceptance committee will randomly select the samples of the High-voltage insulating tape for each delivery lot with number as specified in **Table 2**.

**Table 2: Number of samples for acceptance tests**

Number per lot (Rolls)	Number of samples for acceptance test (Rolls)	Required test items (see Table 3)
Up to 49	1	Item 1 to 5
50 to 200	2	
201 to 500	3	
501 to 1,000	4	
1001 and more	5	

**Note:** - All samples shall be passed the tests.

- The samples shall be not returned and shall be not used in the system.

- After the tests, the additional High-voltage insulating tape with the equal number of the samples specified in **Table 2**, shall be supplied by the contractor with free of charge to complete the number of High-voltage insulating tape in the purchase contract.

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**Table 3: Acceptance test for High-voltage insulating tape**

Item	Test items	Requirements	Test method
1	Dimension - length - width - thickness	not less than 9 m 19 mm ± 0.76 mm 0.76 mm ± 0.076 mm	ASTM D 4325: 2013 or later edition
2	Tensile strength, min	1.7 MPa* (see additional condition in Note below)	
3	Elongation at break, min	700 %	
4	Dielectric strength, min	24 kV/mm	
5	Fusion-Flag 2 mm, max	pass at 300 % elongation** (see additional condition in Note below)	

**Note:** - \* Additional conditions for tensile strength test:

During the tests, tensile strengths of the tape shall be measured and recorded at the elongation of 100%, 200%, 300%, 400%, 500%, 600% and 700%. The tensile strength shall be increased by the increasing of the elongation. The graph of tensile strength and elongation shall be plotted and showed in the report.

- \*\* Colour photographs showing the sample preparation after wrapped on the mandrel shall be showed in the report.

If the sample(s) fail in the test, PEA will reject all High-voltage insulating tapes in the delivery lot.

**1f Manufacturing process inspection**

PEA reserve the right to send the representatives by PEA's expense to inspect manufacturing processes of the products during manufacturing with free access any time he deems necessary. The contractor shall facilitate PEA's representative to get access to where the tapes are being manufactured; otherwise, the contract shall be rejected.

The manufacturing factory shall have production machines at least by the following:

- Extrusion machine, for extruding the compound to the tape
- Calendering machine, for smoothing out the surface and shape to required thickness
- Winding machine, for winding to the jumbo roll
- Converting machine, for cutting to the required width

The contractor shall inform PEA in advance for the date of manufacturing in order that PEA can make an appointment with the contractor for inspecting the processes as above-mention.





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#### 1g Guarantee

The contractor has to guarantee quality of the High-voltage insulating tapes for two (2) years commencing from the date that the tapes are received by PEA. During the guarantee period, the contractor shall replace the defective High-voltage insulating tapes, such as unduly attaching of the tape to the separators or loss of their properties, with free of charge within fifteen (15) days after receiving the document of PEA.





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**C2 Material and packing data shall be submitted with the bid:**

The following critical documents and details shall be submitted with the bid:

**Critical documents of the proposed High-voltage insulating tape shall be submitted with the bid for each item offered:**

(The bidders shall fill the table below; otherwise, the proposal shall be rejected)

No.	Required technical document	Proposed technical document	Reference document (Folder/Page No.)
1	Guarantee performance data of High-voltage insulating tape, self-fusing EPR based (see Pages 9 of 9)	<input type="checkbox"/> YES <input type="checkbox"/> No	
2	Type test report (see 1d.1), or	<input type="checkbox"/> YES <input type="checkbox"/> No	
	Purchase Order (PO) from PEA's Procurement Department (from PEA's head office), or	<input type="checkbox"/> YES <input type="checkbox"/> No	
	Registration certificate of PEA Product Acceptance, or	<input type="checkbox"/> YES <input type="checkbox"/> No	
	Registration certificate of Product lists for transmission and substation turnkey project	<input type="checkbox"/> YES <input type="checkbox"/> No	
3	Catalogue	<input type="checkbox"/> YES <input type="checkbox"/> No	
4	Packing detail (see 1c.4)	<input type="checkbox"/> YES <input type="checkbox"/> No	





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Invitation to Bid No:

#### Performance data and guarantee of the proposed High-voltage insulating tape, self-fusing EPR based

<b>Manufacturers</b>		
<b>Country of origin</b>		
<b>Brand name</b>		
<b>Type or model</b>		
<b>Distributor</b>		
<b>Properties</b>	<b>Unit</b>	<b>Proposed data</b>
Dimension		
- length	m	
- width	mm	
- thickness	mm	
Tensile strength, min	MPa	
Elongation at break, min	%	
Dielectric strength, min	kV/mm	
Dissipation factor, max		
- after water immersion	-	
- after hot water immersion	-	
Permittivity, max		
- after water immersion	-	
- after hot water immersion	-	
Volume resistivity, min		
- 96 h at 23°C and 50 % RH	ohm-cm	
- 96 h at 23°C and 96 % RH	ohm-cm	
Fusion-Flag 2 mm, max, at 300 % elongation	PASS/FAIL	
Ozone resistance	PASS/FAIL	
Heat exposure, at 130 °C	PASS/FAIL	
UV resistance	PASS/FAIL	
<b>Guarantee period</b>	year(s)	





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**C3 Schedule of detailed requirement**

**Invitation to Bid No. :**

Item	PEA Material No.	Quantity	Description
1	1020180008	roll(s)	<p>High-voltage insulating tape, self-fusing EPR based shall be designed for the splicing and repair of electrical wire and cables operating at voltages up to 69 kV with:</p> <p style="margin-left: 40px;">Length : Not less than 9 m</p> <p style="margin-left: 40px;">Width : 19 mm ± 0.76 mm</p> <p style="margin-left: 40px;">Thickness : 0.76 mm ± 0.076 mm</p>





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C4 Price schedule

Manufacturer :

Invitation to Bid No.:

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	1020180008		High-voltage insulating tape, self-fusing, EPR based shall be designed for the splicing and repair of electrical wire and cables operating at voltage up to 69 kV with  Length : ..... m Width : ..... mm Thickness : ..... mm	roll(s)	set(s)	

