



การไฟฟ้าส่วนภูมิภาค
PROVINCIAL ELECTRICITY AUTHORITY

PROVINCIAL ELECTRICITY AUTHORITY

TECHNICAL SPECIFICATION DIVISION

(การพิมพ์ที่ 5, 6)
RHDW-028/2560

RACKS FOR HORIZONTAL SPOOL INSULATOR INSTALLATION

Specification No.: RHDW-028/2560

Approved date : 28/04/2560

Rev. No. : 0

Form No. -

Page 1 of 5

Invitation to Bid No. : 263 รพท.(รศ) EBS9 ปี 2567

C Material, equipment, and specifications for RACKS FOR HORIZONTAL SPOOL INSULATOR INSTALLATION

C1 General material and packing instructions

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

1a Scope

These specifications cover racks for horizontal spool insulator installation, which shall be designed for outdoor LV system.

1b Standards

The racks (horizontal spool insulator type) shall be in accordance with PEA drawings attached to these specifications, or equivalent; unless otherwise specified in these specifications.

1c Principal requirement

1c.1 Service conditions and installation

The racks shall be suitable for operation under the following conditions:

Altitude	: up to 1,000 m above sea level
Ambient air temperature	: up to 40 °C
Relative humidity	: up to 94 %
Climatic condition	: tropical climate

1c.2 Design

The racks shall be designed for horizontal spool insulator installation according to relevance drawing.

Bidders shall be submitted with the bid as follows:

- (1) Detail drawing with dimension in mm
- (2) Description of materials used for the component parts
- (3) Surface finishing of the component parts
- (4) Zinc coating in g/m^2 or μm ($1 \mu m = 0.001 mm$)
- (5) Weight in kg/set or piece

All ferrous materials shall be galvanized after manufacturing.

Method of galvanizing and thickness of coating shall be according to **Table 1 : Thickness of zinc coating.**



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Table 1

Thickness of zinc coating

Material	Steel thickness range (mm)	Minimum average coating thickness (µm)
- Pin M 16	-	53
- Rack	< 1.6	45
	< 3.2	65
	< 4.8	75
	4.8 – 6.4	85
	> 6.4	100

Note : 1. Thickness of coating of specimens shall be measured with a magnetic measuring instrument "microtest" or "electromagnetic coating thickness gauge".

2. PEA will measure zinc coating ten (10) points for each compartment and the average coating thickness shall not less than Table 1 : Thickness of zinc coating.

1c.3 Samples

Samples shall be supplied on request. In case of samples are requested by PEA, The bidder have to supply samples of each item of the racks within fifteen (15) calendar days.

The bidders who cannot supply the requested samples shall be rejected.

PEA reserves the right to test the samples according to PEA's acceptance testing procedure. In case of the failing test results, the bidders shall be rejected.

The samples shall not be returned.

1c.4 Markings

The markings shall be marked legibly and durably as follows:

- (1) Manufacturer's name and/or trademark.
- (2) Other according to manufacturer's design.



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1d Packing

The racks shall be packed as following **Table 2 : Packing method.**

Table 2

Packing method

PEA material No.	Quality per package	Packing method
1030130003, 1030130004 1030130005, 1030130006	5	Bundle

1e Acceptance test

The acceptance inspection by PEA shall be as follows:

Five (5) samples of the racks shall be selected at random from each lot and tested in accordance with following items:

(1) Dimensional test. The dimensions of all samples shall be according to relevance drawing as show in **C3 schedule of detailed requirement.**

(2) Zinc coating test. The zinc coating shall be according to PEA standard as shown in **Table 1 : Thickness of zinc coating.**

In case of the test failed at least one (1) sample for either dimensional test or zinc coating test, another five (5) samples of the racks shall be selected and tested for dimension and zinc coating, all samples shall be passed the tests.



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C2 Material to be given by bidder with the bid

2a Detail drawing with dimension in mm

2b Description of materials used for the component parts

2c Surface finishing of the component parts

2d Zinc coating in g/m^2 or μm ($1 \mu m = 0.001 mm$)

2e Weight in kg/set or piece

2f Packing details

Packing method

Number of sets or pieces in each package

Dimensions of each package in cm

Gross weight of each package in kg (should not exceed 40 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

Dimensions of each case in cm

Gross weight of each case in kg

Number of cases

2g Critical documents of the racks (See pages 5 of 5)

The lists of documents shall be fulfilled and submitted with the bid.



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Critical documents of the racks

Item	Required documents	Proposed technical document	Reference document (Page/Item)
1	Detail drawing with dimension in mm	<input type="checkbox"/> Yes <input type="checkbox"/> No	
2	Description of materials used for the component parts	<input type="checkbox"/> Yes <input type="checkbox"/> No	
3	Surface finishing of the component parts	<input type="checkbox"/> Yes <input type="checkbox"/> No	
4	Zinc coating in g/m^2 or μm ($1 \mu m = 0.001 mm$)	<input type="checkbox"/> Yes <input type="checkbox"/> No	
5	Weight in kg/set or piece	<input type="checkbox"/> Yes <input type="checkbox"/> No	
6	Packing details in 2f (pages 4 of 5)	<input type="checkbox"/> Yes <input type="checkbox"/> No	

The item offered without submitting the critical documents shall be rejected.



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INSTALLATION

Page 1 of 1

C3 Schedule of detailed requirement

Item	PEA Material No.	Quantity	Description
1	1030130003	set (s)	Rack for horizontal spool insulator installation, cotter pin of brass or stainless steel, 1x200 mm, see Drawing No. SB4-015/60002
2	1030130004	1300 EA 7 set (s)	Rack for horizontal spool insulator installation, cotter pin of brass or stainless steel, 2x200 mm, see Drawing No. SB4-015/60003
3	1030130005	set (s)	Rack for horizontal spool insulator installation, cotter pin of brass or stainless steel, 3x200 mm, see Drawing No. SB4-015/60004
4	1030130006	2000 EA 7 set (s)	Rack for horizontal spool insulator installation, cotter pin of brass or stainless steel, 4x200 mm, see Drawing No. SB4-015/60005



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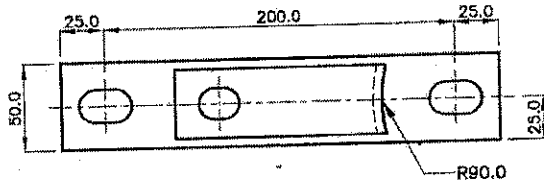
C4 Price schedule

Invitation to Bid No.: *Ab 3 AMM (157) E059 d 2567*

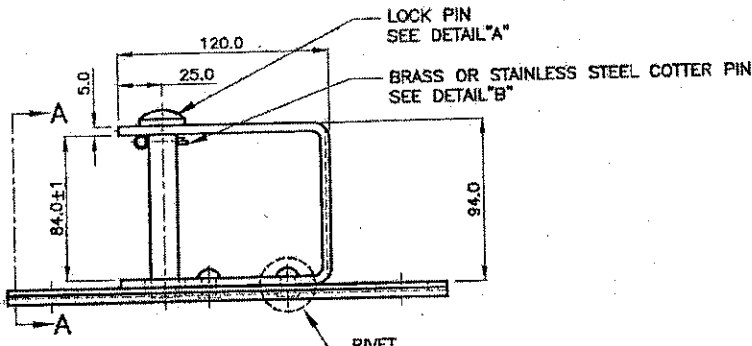
Manufacturer :
Country of origin :
Trade-mark :

Item	PEA Material No.	Catalogue No.	Description	Quantity	Unit Cost (See details & conditions attached)	Total Cost (See details & conditions attached)
1	1030130003		Rack for horizontal spool insulator installation, 1x200 mm	set (s)		
2	1030130004		Rack for horizontal spool insulator installation, 2x200 mm	<i>1300 EA</i> set (s)		
3	1030130005		Rack for horizontal spool insulator installation, 3x200 mm	set (s)		
4	1030130006		Rack for horizontal spool insulator installation, 4x200 mm	<i>2000 EA</i> set (s)		

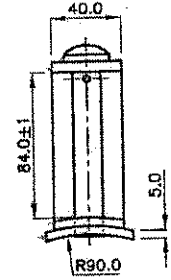
PRELIMINARY



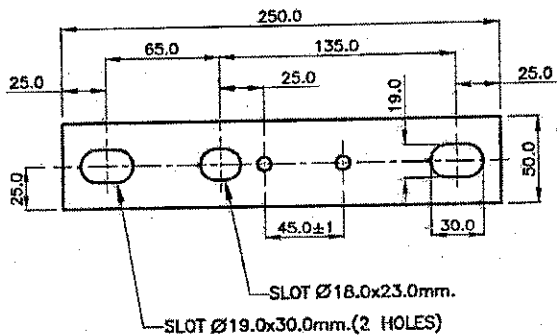
TOP VIEW



FRONT VIEW



SECTION A-A



BOTTOM VIEW

<p>DETAIL "A" : LOCK PIN</p>	<p>DETAIL "B" : BRASS OR STAINLESS STEEL COTTER PIN</p>	<p>DETAIL "C" : RIVET</p>

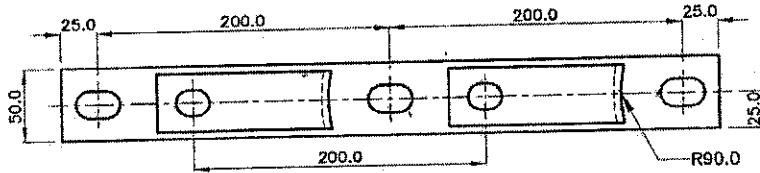
Note:

1. Unless otherwise specified, the tolerance shall be $\pm 5\%$.
2. Shape of cotter pin shall be according to manufacturer's design.
3. Not to scale.

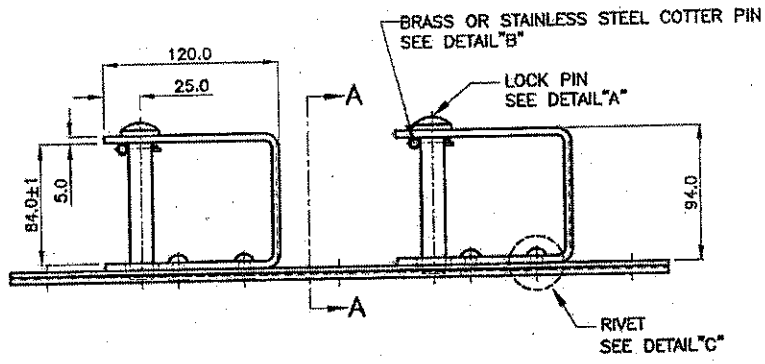


<p>กองข้อกำหนดทางเทคนิค ฝ่ายวิศวกรรม</p>	<p>การไฟฟ้าส่วนภูมิภาค</p>	<p>ใช้แทนแบบ..... ถูกแทนโดยแบบ.....</p>
<p>ผู้เขียน...วิวัฒน์ ตันนง..... ผู้สำรวจ..... วิศวกร...วิวัฒน์..... หัวหน้าแผนก...วิวัฒน์.....</p>	<p>แร็ค 1X200 สำหรับติดตั้งลูกกรอกแนวนอน</p>	<p>เขียนเสร็จวันที่ 17.ม.ค. 2560 แก้แบบวันที่..... มิติเป็น...มิลลิเมตร.....</p>
<p>ผู้อำนวยการกอง..... ผู้อำนวยการฝ่าย.....</p>	<p>RACK 1X200 FOR HORIZONTAL SPOOL INSULATOR INSTALLATION</p>	<p>มาตราส่วน..... แบบเลขที่ SB4-015/60002 แผ่นที่ 1. ของจำนวน 1. แผ่น</p>

PRELIMINARY

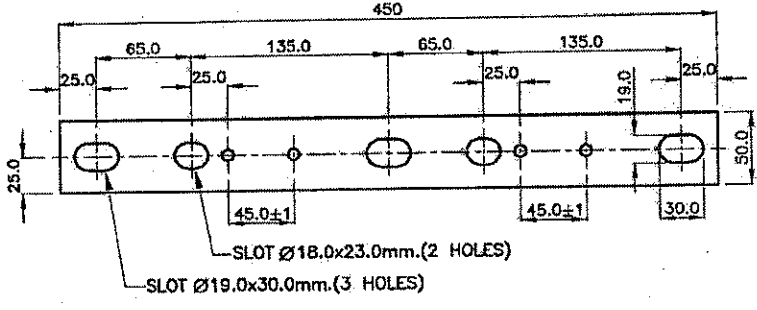


TOP VIEW



FRONT VIEW

SECTION A-A



BOTTOM VIEW

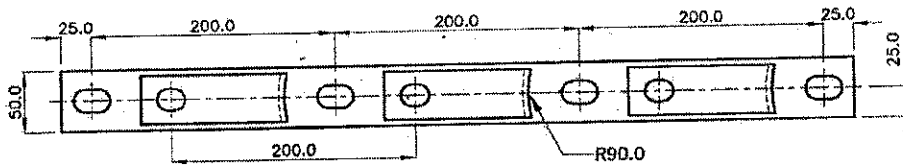
<p>DETAIL "A" : LOCK PIN</p>	<p>DETAIL "B" : BRASS OR STAINLESS STEEL COTTER PIN</p>	<p>DETAIL "C" : RIVET</p>

- Note:
1. Unless otherwise specified, the tolerance shall be $\pm 5\%$.
 2. Shape of cotter pin shall be according to manufacturer's design.
 3. Not to scale.

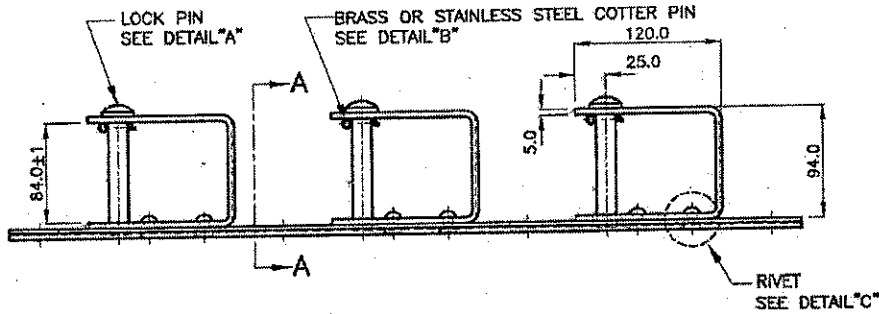


<p>กองข้อกำหนดทางเทคนิค ฝ่ายวิศวกรรม</p>	<p>การไฟฟ้าส่วนภูมิภาค</p>	<p>ใช้แทนแบบ.....</p>
<p>ผู้เขียน...วิฑูรย์... ผู้สำรวจ... วิศวกร...วิฑูรย์... หัวหน้าแผนก... ผู้อำนวยการกอง... ผู้อำนวยการฝ่าย...</p>	<p>แร็ค 2X200 สำหรับติดตั้งลูกกรอกแนวนอน</p>	<p>ถูกแทนโดยแบบ..... เขียนเสร็จวันที่. 17 ม.ค. 2560 แก้แบบวันที่..... มิติเป็น... มิลลิเมตร.....</p>
	<p>RACK 2X200 FOR HORIZONTAL SPOOL INSULATOR INSTALLATION</p>	<p>มาตราส่วน..... แบบเลขที่ SB4-015/60003 แผ่นที่. 1. ของจำนวน. 1. แผ่น</p>

PRELIMINARY

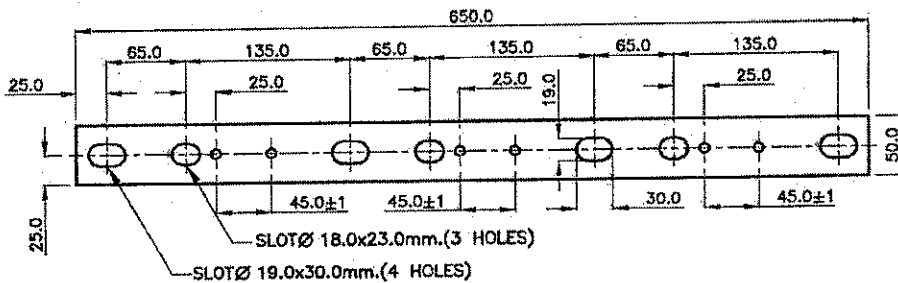


TOP VIEW



FRONT VIEW

SECTION A-A



BOTTOM VIEW

DETAIL "A" : LOCK PIN	DETAIL "B" : BRASS OR STAINLESS STEEL COTTER PIN	DETAIL "C" : RIVET

Note:

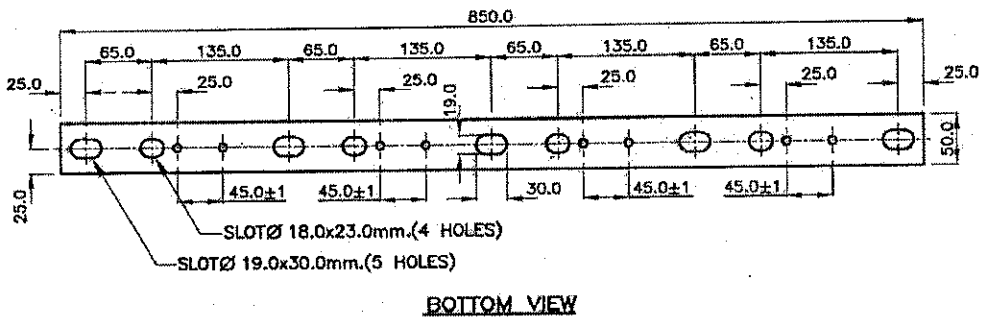
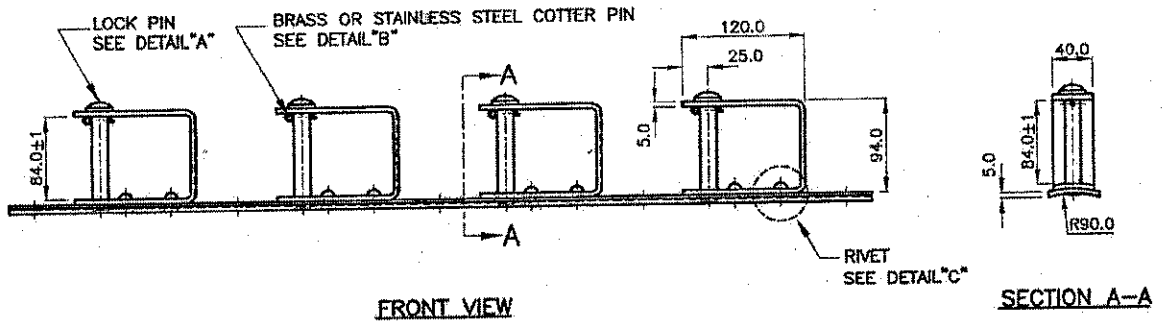
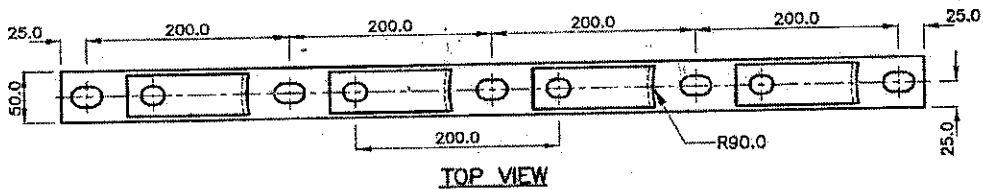
1. Unless otherwise specified, the tolerance shall be $\pm 5\%$.
2. Shape of cotter pin shall be according to manufacturer's design.
3. Not to scale.

TSP

PEA

กองข้อกำหนดทางเทคนิค ฝ่ายวิศวกรรม	<h2 style="margin: 0;">การไฟฟ้าส่วนภูมิภาค</h2> <p style="margin: 5px 0 0 0;">แรงค์ 3X200</p> <p style="margin: 5px 0 0 0;">สำหรับติดตั้งลูกกรอกแนวนอน</p>	ใช้นทนแบบ..... ถูกแทนโดยแบบ..... เขียนเสร็จวันที่ 17 ม.ค. 2560 แกบแบบวันที่..... มิติเป็น... มิลลิเมตร มาตรฐานส่วน..... แบบเลขที่ SB4-015/60004 แผ่นที่ 1. ของจำนวน 1. แผ่น
ผู้เขียน... วิทวัส ตันนุก..... ผู้สำรวจ..... วิศวกร... วิทวัส..... หัวหน้าแผนก... [Signature]..... ผู้อำนวยการกอง... [Signature]..... ผู้อำนวยการฝ่าย... [Signature].....	<h3 style="margin: 0;">RACK 3X200 FOR HORIZONTAL SPOOL INSULATOR INSTALLATION</h3>	

PRELIMINARY



<p>DETAIL "A" : LOCK PIN</p>	<p>ACCORDING TO MANUFACTURER'S DESIGN</p> <p>DETAIL "B" : BRASS OR STAINLESS STEEL COTTER PIN</p>	<p>NOT MORE THAN 16.0</p> <p>DETAIL "C" : RIVET</p>
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- Note:**
1. Unless otherwise specified, the tolerance shall be $\pm 5\%$.
 2. Shape of cotter pin shall be according to manufacturer's design.
 3. Not to scale.

TSP
PEA

กองข้อกำหนดทางเทคนิค ฝ่ายวิศวกรรม	<h2 style="margin: 0;">การไฟฟ้าส่วนภูมิภาค</h2> <p style="margin: 5px 0;">เร็ค 4X200</p> <p style="margin: 5px 0;">สำหรับติดตั้งลูกกรอกแนวนอน</p>	ใช้แทนแบบ..... ถูกแทนโดยแบบ..... เขียนเสร็จวันที่ 17 ม.ค. 2560 แก่แบบวันที่..... มิติเป็น...มิลลิเมตร..... มาตรฐาน.....
ผู้เขียน...วิฑูรย์... ผู้สำรวจ..... วิศวกร...วิฑูรย์... หัวหน้าแผนก...วิฑูรย์... ผู้อำนวยการกอง... ผู้อำนวยการฝ่าย...	<h3 style="margin: 0;">RACK 4X200 FOR HORIZONTAL SPOOL INSULATOR INSTALLATION</h3>	แบบเลขที่ SB4-015/60005 แผ่นที่ 1. ของจำนวน 1. แผ่น