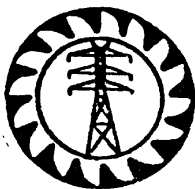


097 : 2000

CEB
STANDARD

EARTH WIRE TENSION ASSEMBLY



CEYLON ELECTRICITY BOARD
SRI LANKA

Specification

for

EARTH WIRE TENSION ASSEMBLY

CEB Standard 097 : 2000

CEYLON ELECTRICITY BOARD

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SPECIFICATION FOR EARTH WIRE TENSION ASSEMBLY

1.0 SCOPE

This specification covers the general requirements of design, manufacture, testing, supply and delivery of Galvanised Steel Earth Wire Tension Assembly for use in the construction of medium and low voltage overhead lines

2.0 APPLICABLE STANDARDS

- a) BS 464 (1998) - Thimbles for wire ropes
- b) BSENISO 1461 (1999) - Hot dip galvanised coating on iron and steel articles

3.0 BASIC FEATURE

The earth wire tension assembly shall be suitable for tensioning 4mm diameter galvanised iron (GI) earth wire in the construction of low voltage overhead lines, and 5mm diameter GI earth wire for medium voltage lines.

The earth wire tension assembly shall consists of the following;

- a) Angle Iron Bracket for MV line application
- b) Flat Iron Strap for LV line application
- c) Steel Thimble
- d) Copper Sleeve (Type 1 and Type 2)

The earth wire tension assembly for medium voltage application shall consist of an angle iron bracket, a steel thimble and a copper sleeve (type 1 or 2) as per schedule of prices.

The earth wire tension assembly for low voltage application shall consist of a flat iron strap, a steel thimble and a copper sleeve (type 1 or 2) as per schedule of prices.

3.1 Angle Iron Bracket

The angle iron of 60mm X 60mm x 6mm made of steel having a tensile strength not less than 340N/mm². The width shall not be less than 30mm and the thickness shall not be less than 6mm. Holes shall be provided on either sides of the angle iron.

The hole on one side of the angle iron shall be 18mm diameter, and which shall be used to fix the angle iron to the pole with 16 mm diameter bolt. The hole on the other side shall be 20mm diameter and a thimble (as per Clause 3.3) shall be fixed to the angle iron as indicated in the drawing No DS&S /2000/097.



3.2 Flat Iron Strap

The flat iron strap shall be of 30mm width, made of steel having a tensile strength not less than 340 N/mm^2 . The length of the strap shall not be less than 186mm and the thickness shall not be less than 6mm. Holes shall be provided on either ends of the strap.

The hole on one end of the flat iron strap shall be 18mm diameter, and which shall be used to fix the strap to the pole top with 16 mm diameter bolt. The hole on the other end shall be 20mm diameter and a thimble (as per Clause 3.3) shall be fixed to the flat iron as indicated in the drawing No DS&S /2000/097.

3.3 Steel Thimble

The thimble shall be made of steel as per BS 464. The width of the thimble groove shall be 14mm and the height of the thimble shall not be less than 63.5mm. The thimble shall be threaded in to the 20mm hole of the angle iron as indicated in the Dr No. DS&S/2000/097

3.4 Copper Sleeve

The copper Sleeve shall be made of electrical grade copper and shall be of two types (Type 1 and Type 2) as stipulated below; The length of the sleeve shall not be less than 50mm and the thickness of the sleeve shall not be less than 1.5mm. Both ends of the sleeve shall be chamfered as indicated in the Dr. No.DS&S/2000/097 for easy entry of wires.

3.3.1 Type 1 (circular type)

The Type 1 (circular type) copper sleeve shall be suitable to accommodate three numbers of 5mm / 4mm diameter G.I. Earth wires (two jumpers and a down run G.I. earth wire) for crimp jointing. The inner and outer diameter shall not be less than 13mm and 16mm respectively.

3.3.2 Type 2 (Oval type)

The Type 2 (Oval type) copper sleeve shall be suitable to accommodate two numbers of 5mm / 4mm diameter G.I. Earth wires jumpers and a down run stranded copper earth wire of 10mm diameter. The dimension of the Type 2 copper sleeve shall be as indicated in the Dr. No. DS&S 2000/097

3.4 Galvanising

All steel hardware shall be galvanised after subjecting to the processes such as sawing, shearing, drilling, punching, filing, bending and machining. Galvanizing shall be applied by hot dip process to comply with the BSEN ISO 1461 (1999) specified.

The thickness of zinc coating shall not be less than 85 microns. To prevent the formation of white rust, all items shall be treated with sodium dichromate after galvanizing and stored under well ventilated conditions.



4 ADDITIONAL REQUIREMENTS

4.4 Marking

The word "CEB" and the "year of manufacture" shall be impressed and marked on all hardware items. For steel hardware items, the marking shall be carried out before galvanising.

4.5 Packing

The complete earth wire tension assembly shall be packed in polythene lined wooden boxes and each box shall contain 100 nos. of complete set . Each box shall be marked with the following particulars

- a) Name of Item
- b) Quantity
- c) Gross weight
- d) Name of manufacturer

5 INFORMATION TO BE SUPPLIED WITH THE OFFER

5.1 The following information shall be furnished with th offer,

- a) Name of manufacturer
- b) Place of manufacture
- c) Duly completed schedule of particulars

5.2 Test Certificates

- i) Tensile strength of steel used
- ii) Galvanising test as per BS EN ISO1461
- iii) Purity of copper

Offers of Bidders who fail to furnish the above particulars and the Sample as per Clause 6.0 shall be rejected

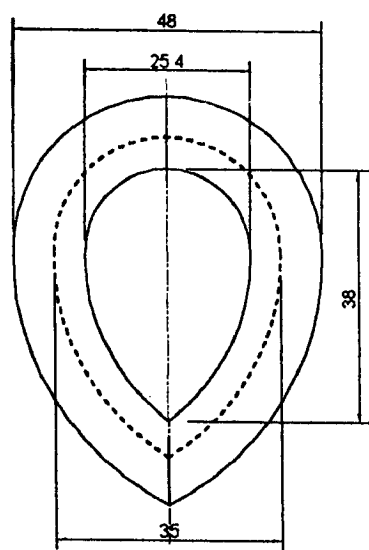
6 SAMPLE

A complete sample of earth wire tension assembly quoted shall be furnished along with the offer by the bidder to facilitate analysis and evaluation of tender.

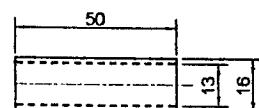
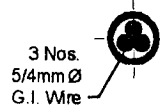
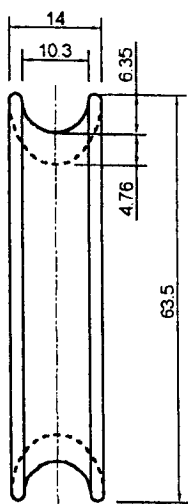
7 ANNEX

- Annex - A Dr. No. DS&S 2000/097 - MV & LV Earth wire tension assembly
- Annex - B Schedule of guaranteed technical particulars – To be filled by the Bidder

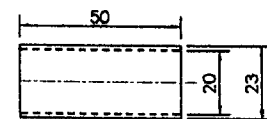
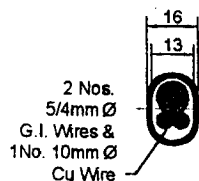




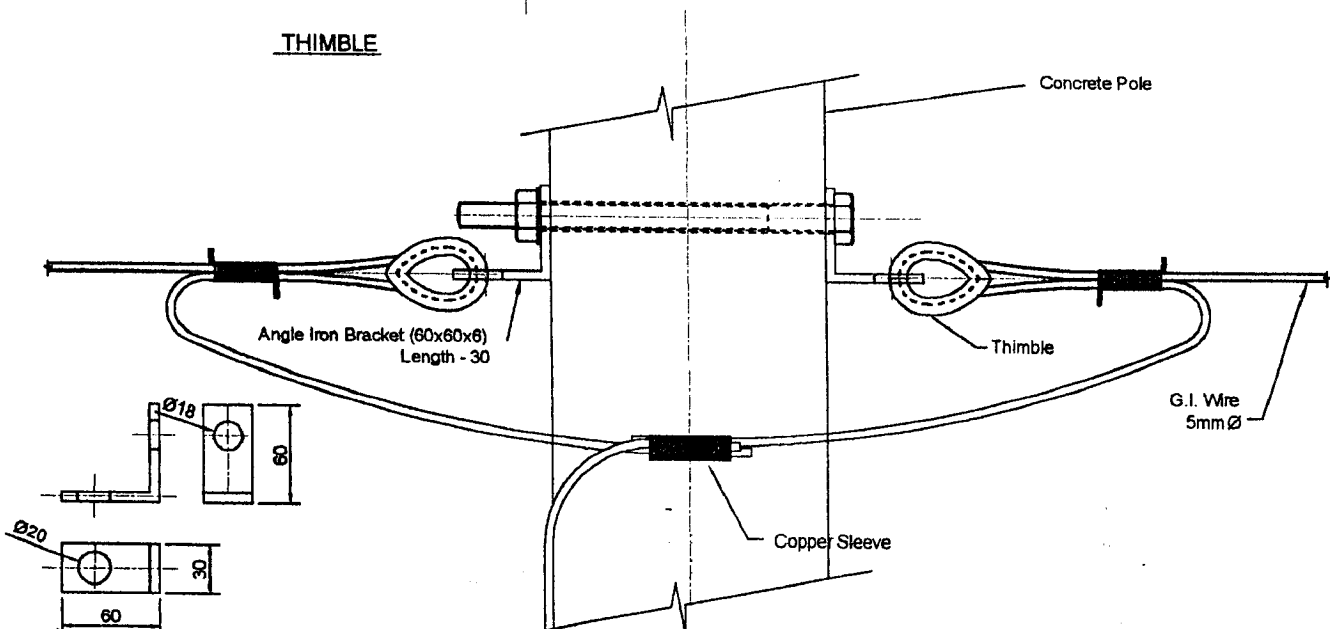
THIMBLE



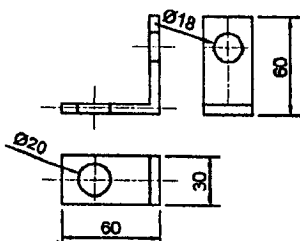
**COPPER SLEEVE TYPE - 1
(CIRCULAR)**



**COPPER SLEEVE TYPE - 2
(OVAL)**

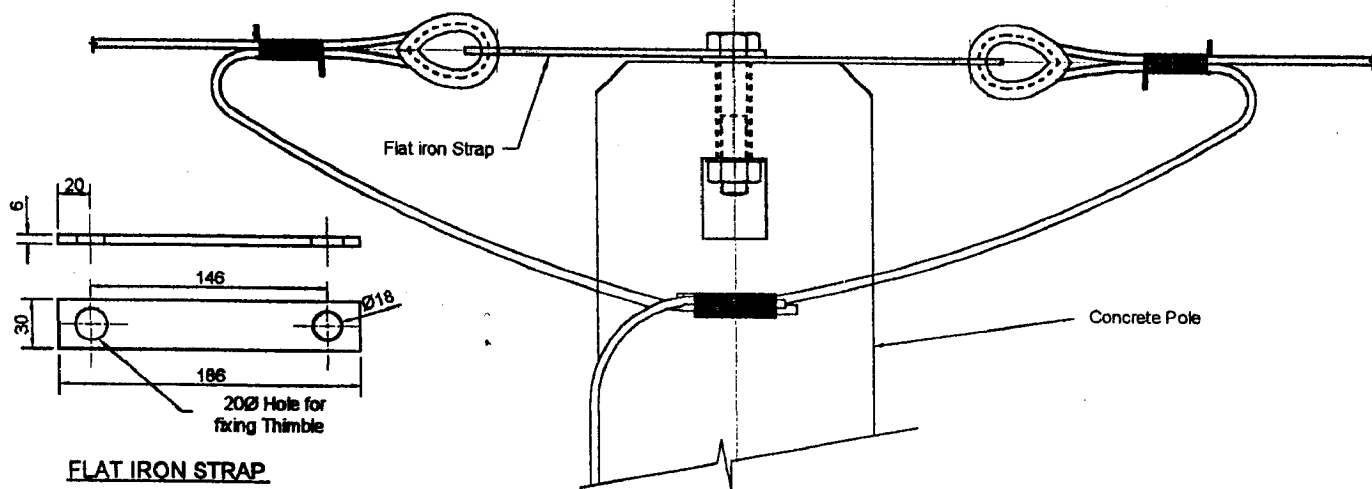


**Angle Iron Bracket (60x60x6)
Length - 30**

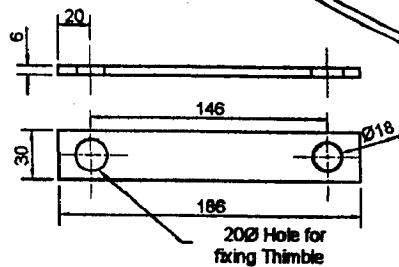


ANGLE IRON BRACKET

MEDIUM VOLTAGE APPLICATION



Flat iron Strap



FLAT IRON STRAP

LOW VOLTAGE APPLICATION

ALL DIMENSIONS ARE IN mm.

DISTRIBUTION STANDARDS & SPECIFICATION

SCALE : NOT TO SCALE



**CEYLON
ELECTRICITY
BOARD**

**MV & LV
EARTH WIRE TENSION ASSEMBLY**

DRAWN : LALANI

DESIGNED BY

[Signature]

APPROVED BY

[Signature]

DATE : Aug. 2000

DRG. NO : DS&S/2000/067

DIST. PLANNING BRANCH

E.E. (DS & S)

CHAIRMAN, SPECIFICATION COMMITTEE

CAD NO :

ANNEX- B

SCHEDULE OF GUARANTEED TECHNICAL PARTICULARS

(This schedule shall be duly filled by the Manufacturer)

1)	Name of the manufacturer		-
2)	Place of manufacture		-
3)	Galvanised Steel Strap		
	i)	Width	mm -
	ii)	Thickness	mm -
	iii)	Pole hole/Thimble hole diameter	mm, mm -
	iv)	Thickness of Zinc coating	micron -
	v)	Weight	gm -
4)	Galvanised Angle iron Bracket		
	i)	Sides	mm X mm -
	ii)	Length	mm -
	iii)	Thickness	mm -
	iv)	Pole hole/Thimble hole diameter	mm, mm -
	v)	Thickness of Zinc coating	micron -
	vi)	Weight	gm -
5)	Galvanised Steel Thimble		
	i)	Width	mm -
	ii)	Height	mm -
	iii)	Diameter of the eye	mm -
	iv)	Thickness of Zinc coating	micron -
	v)	Weight	gm -
6)	Copper Sleeve		
	i)	Type	Type 1 Type 2 -
	ii)	Grade	-
	iii)	Purity	-
	iv)	Outer Diameter	mm -
	v)	Inner diameter	mm -
	vi)	Thickness of sleeve	mm -
	vii)	Length	mm -
	viii)	Weight	gm -

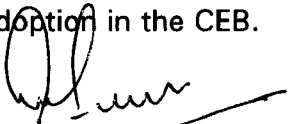
I / We certify that the above data are true and correct.

SEAL AND SIGNATURE OF THE BIDDER / DATE

APPROVAL OF CEB STANDARDS

CEB Standard No. : *CEB Standard 097 : 2000*
Title of the Standard : *Specification for Earth Wire Tension Assembly*
Date of Approval : *September 2000*

This is to certify that the above Standard has been recommended by us for Adoption in the CEB.


..... Chairman Specification Committee
A M Tissera


..... Member Specification Committee
Mrs. B Jayaweera


..... Member Specification Committee
R J Gunawardena


..... Member Specification Committee
G Gunawardena


..... Member Specification Committee
A K Devasurendra


..... Member Specification Committee
M A L V Fernando


..... Member Specification Committee
K K A C Samarasinghe


..... Convenor Specification Committee
A K Theyaparendran

CEB Standard 097 : 2000 - Specification for Earth Wire Tension Assembly is approved for adoption in the CEB.


General Manager,
Ceylon Electricity Board.

Date : *17/10/00*