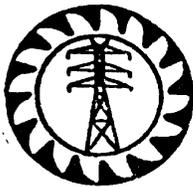


001: 2007

CEB
STANDARD

**ALUMINIUM RE-DRAW RODS FOR ELECTRICAL
PURPOSES**



**CEYLON ELECTRICITY BOARD
SRI LANKA**

Specification

for

ALUMINIUM RE-DRAW RODS FOR ELECTRICAL PURPOSES

CEB Standard 001: 2007

CEYLON ELECTRICITY BOARD

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SPECIFICATION FOR ALUMINIUM RE-DRAW RODS FOR ELECTRICAL PURPOSES

1. Scope

This specification covers the manufacture, supply and delivery of aluminium 1350 drawing stock of 9.52 mm diameter in the temper of H14, suitable for drawing into wire for the manufacture of electrical conductors.

2. Applicable Standards

The material supplied shall be in accordance with the latest edition of the standard specified below and amendments thereof.

ASTM B 233-97 (2003) Standard Specification for Aluminium 1350 Drawing Stock
for Electrical Purposes.

Material conforming to other International Standards which are equal to or higher but not less rigid than the standard specifications stipulated may be offered. When such alternative Standards are used reference to such standards shall be quoted and English language copies of such standards shall be provided with the offer.

3. Technical requirements

(a) Chemical Compositions

The chemical composition of the drawing stock shall conform to the requirements given in the table below. The minimum purity of Aluminium shall be 99.5%,

Element	Allowed Composition %	
Silicon	Max	0.10
Iron	Max	0.40
Copper	Max	0.05
Manganese	Max	0.01
Chromium	Max	0.01
Zinc	Max	0.05
Boron	Max	0.05
Galium	Max	0.03
Vanadium plus Lithium total	Max	0.02
Other elements each	Max	0.03
Other elements total	Max	0.10
Aluminium	Min	99.5

(b) Electrical & Mechanical Properties

Description	Units	Value
Tensile Strength	MPa	103-138
Electrical resistivity	$\Omega \text{ mm}^2/\text{m}$	0.028080
Diameter of the rod	Mm	9.52
Allowable deviation from mean diameter	Mm	± 0.51
Deviation at any point from specified diameter	Mm	0.76

4. Basic Features

4.1. Manufacture

The aluminium 1350 drawing stock of 9.52mm diameter shall be produced from continuously cast bars and shall have a temper of H14 classification. The drawing stock shall be furnished in continuous length coils without joints and the weight of each coil shall be between 1.5 MT to 2.0 MT. The tensile strength and the electrical resistivity of the drawing stock shall conform with the section 3.0 (b).

4.2. Diameter & Tolerance

The diameter of the drawing stock shall be 9.52 mm and the diameter shall not vary from the specified by more than the permissible variation specified in section 3.0 (b).

4.3. Workmanship

The rod shall be clean, sound, smooth and free of pipes, laps, cracks, kinks, twists, seams, damaged ends, excessive oil, and other injurious defects within the limits of good commercial practice.

The rod shall be uniform in quality and temper and shall be suitable for drawing into wire at a speed of 1200 metres per minute without scraping (aluminium chips peeling out) and breaking.

5. Quality Assurance

The Manufacturer shall possess ISO 9001: 2000 Quality Assurance Certification valid throughout the delivery period of this tender, for the plant where the aluminium drawing stock is being manufactured. The Bidder shall furnish a certified copy of the ISO Certificate along with the offer.

6. Additional Requirements

6.1 Packing

- (a) The coils shall be wrapped with polythene pre-shrunk on coils to enable storage under high humid tropical weather conditions.
- (b) A minimum of six (06) strapping shall be used on a coil. The quality and the application of the wrapping shall be adequate to protect the rods from being damaged during the normal handling, shipment and storage. No steel binders/ wrapping shall be used.
- (c) The material shall be shipped in coils on pallets fitted on one circular face area of the coil in such a manner that the coils are suitable for storage with the face area in horizontal position. The pallets shall be strong enough to allow the storage of four (04) coils stacked together one on top of the other in horizontal position.

6.2 Marking

- (a) Each coil shall bear two tags showing the Manufacturer's name or trade mark, weight of the coil, coil size, aluminium number, temper of material, the word "CEB" and the Bid Number.
- (b) One tag shall be enclosed inside the polythene wrapping and the other tag shall be attached on the outside.
- (c) The same information given on the tag shall also be written on the outside face of the polythene wrapping using indelible ink to be clearly visible from the outside.

7. Information to Be Furnished With the Offer

7.1 The following shall be furnished with the offer in English Language

- (a) A certified copy of the ISO 9001:2000 quality assurance certificate.
- (b) Completed Schedule of Guaranteed Technical Particulars. (Annexure A).
- (c) The bidder shall have at least 10 years of experience in the manufacture of aluminium drawing stock and shall furnish sufficient documentary evidence along with the offer bid to prove his manufacturing experience.
- (d) Bidders shall provide a list of recent 05 years sales of the drawing stock with quantities and evidence of such sales.

7.2 Test Reports

The following test reports from a recognized Independent Testing Authority pertaining to recent manufacture of drawing stock of standards specified herein shall be furnished with the offer.

- (a) Chemical composition as requested in Clause 5.0 above.
- (b) Electrical resistivity
- (c) Tensile strength
- (d) Tolerances on diameter

8. Sample

A sample piece of Aluminium drawing stock of length 1.0 meter manufactured to the Specifications stipulated shall be supplied with the offer to facilitate analysis and evaluation.

The Bidder's identity shall be punched or marked with indelible ink on the sample rod.

9. Inspection & Testing

The successful Bidder shall make necessary arrangements for inspection by an Engineer appointed by the Purchaser to carry out in his presence the necessary Sample / Acceptance tests on material offered.

- (a) Chemical composition as requested in Clause 3.0 above.
- (b) Electrical resistivity
- (c) Tensile strength
- (d) Tolerances in diameter

In addition Mill Certificates of the tests specified shall also be forwarded with the material. .

10. Annex

Annexure A - Schedule Of Particulars
Annexure B – Price Variation
Annexure C - Non Compliance Schedule

SCHEDULE OF PARTICULARS

(To be filled by the manufacturer – Use separate sheet for each type of wire)

(A) General

1	Name of Manufacturer	
2	Country of Origin	
3	Manufacturing Capacity	
4	Applicable Standard	
5	Purity of Aluminium	
6	Method of Production	
7	Temper as per ASTM B 233-97	
8	Diameter of drawing stock	
9	Tolerance of the diameter of drawing stock	
10	Tensile Strength of drawing stock	
11	Electrical resistivity	
12	Suitability for high speed drawing (1200m/min)	
13	Material of wrapping/binding	
14	Test reports forwarded as per Clause 7.2	
15	Forwarded ISO 9001 quality certificate (Yes/No)	
16	Chemical Composition of drawing stock	
a)	Silicon	
b)	Iron	
c)	Copper	
d)	Manganese	
e)	Chromium	
f)	Zinc	
g)	Boron	
h)	Galium	
i)	Vanadium plus Lithium total	
j)	Other elements each	
k)	Other elements total	
l)	Aluminium	

I/We do hereby certify that the above particulars are true and correct.

Seal & Signature Of The Manufacturer And Date

PRICE VARIATION

The Bidders shall forward their offers on the basis of the Price Variation stipulated below.

1. Basis of the Offer

- (a) Suppliers of aluminium drawing stock are required to make their offers on the basis of a Base Price plus a Fixed Price Margin.
- (b) The Base Price shall be the Cash Seller's Midday Official Average Price of Aluminium high grade 99.7%, at London Metal Exchange (LME) in US Dollars on the day of the closing of Bids or the previous working day if the day of closing of Bid is a non working day at the LME.
- (c) The Fixed Price Margin (FP) shall be quoted in the currency of choice of the Bidder.
- (d) Accordingly FOB Price of aluminium drawing stock of foreign Bidders and ex-factory price of aluminium drawing stock of local Bidders for the purpose of evaluation shall be computed as;

$$[(B_0 \times US_0) + (FP \times CC)] MT$$

Where ;

- B_0 - Base Price which is the Cash seller's midday official average price of Aluminium high grade 99.7%, in US Dollars per Metric ton at the LME on the fixed date [Clause (1 b)].
- FP - Fixed Price Margin per Metric ton of aluminium drawing stock in the currency allowed under Clause 1(c) above.
- MT - Quantity of Aluminium drawing stock in Metric ton
- CC - Currency Conversion rate from the currency of choice of the Bidder to Sri Lanka Rupees prevailing on the date of Bid opening.
- US_0 - Currency Conversion rate from the US Dollars to Sri Lanka Rupees prevailing on the date of Bid opening.

2 Award Price

The FOB award price of aluminium drawing stock for Foreign Bidders and the ex-factory award price of Local Bidders shall be computed as

$$B1 \times MT + FP \times MT$$

Where ;

- B1 - Base Price which is the Cash seller's midday official average price of Aluminium high grade 99.7%, in US Dollars per Metric ton at the LME on the first working day immediately after the date of award.
- FP - Fixed Price Margin per Metric ton of Aluminium drawing stock in the currency allowed under Clause 1(c) above

Intimation of the award will be faxed to the successful Bidder and or to his agent in Sri Lanka on the same day of the award.

3. Conversion of Currency

- (a) For the purpose of the evaluation the Prices Bo in US Dollars and the Fixed Price Margin (FP) in the currency of choice of the Bidder will be converted to Sri Lanka Rupees at the official Selling Exchange Rate of the Central Bank of Sri Lanka prevailing on the day of opening of Bids.

- (b) The payment for the supply will be made to the Supplier at the contract price in the currency quoted for the Fixed Price Margin (FP). The base price B1 in US Dollars will be converted to the currency of the FP at the exchange rates indicated in the bulletin of the LME applicable on the first working day immediately after the date of the award of the offer; where such exchange rate is not available for the currency of the FP in the Bulletin the selling rate at the Central Bank of Sri Lanka shall be applicable.

;

Seal and Signature of the Manufacturer/Bidder

Date:.....

Non Compliance Schedule

On this schedule the bidder shall provide a list of non compliances with this specification, documenting the effects that such non compliance is likely to have on the equipment's life and operating characteristics. Each non- compliance shall be referred to the relevant specification clause.

Clause No.	Non Compliance

Seal & Signature of the Manufacturer/Bidder

Date: