

TECHNICAL SPECIFICATIONS
AND SCHEDULES

TECHNICAL SPECIFICATIONS

1. General

This specification cover cutout fuse, surge arrester and disconnect hot sticks for medium voltage system.

All materials shall be complete with fittings and accessories.

1.1 System Characteristics

- Nominal system voltage (kV)	33	11
- Highest system voltage (kV)	36	12
- System frequency (Hz)	50	50
- System insulation level (kV peak)	70/170	28/75
- Neutral Earthing	Through resistance	
- Max symmetrical short circuit level (kA)	25	20
- System short time withstand current (kA)	25	20

1.2 Service Conditions

- Site altitude : - 400 m to + 1600 m
- Ambient temperature : - 10 C to + 50 C
- Thunderstorm : 16 days per year.
- Average relative humidity : 40 - 90 %

1.3 33 & 11 kV Cutout Fuse

The cut-out fuses come with drop out H.R.C. fuses arranged for pole mounted outdoor installation and provided for 33kV and 11kV incoming transformer feeders of distribution substation. It includes the stand-off as well.

The steel work and cross arms used for mounting the cut-out fuses on concrete H-pole structure, consisting of two concrete poles spaced 2.5 meters apart at 3.2 meters from the pole top approximately.
cut-out fuses arranged for hook stick operation.

2. Insulated Disconnect Hot Sticks

The Disconnect hot sticks shall be portable used for operating Fuse Cutouts and disconnect switches 33 kV and 11 kV (Switching On and off).

The hot stick shall be designed and manufactured to be safe for the user, provided that it is used in accordance with safe methods of work and the instructions for use. The hot stick shall be designed for use in outdoor conditions. It shall be complied with IEC standard or equivalent.

3.1 Telescopic Sticks

The telescopic sticks shall be according to IEC 62193 and IEC 61235 or equivalent; the final tube should be foam filled according IEC 60855. Each section is coupled by a push button.

The total length shall be at least 9 meters with a diameter 1 1/2" from the base. The hot stick shall be made of reinforced fiberglass.

The hot stick shall be provided with suitable disconnect head (Hook).

Waterproof Bags: The bags shall be made of high resistance water proof material.

3.2 Marking

Each stick shall have the following markings:

- Rang of nominal voltage.
- Name of Manufacturer.
- Serial number;
- Year of production;

Each stick shall be accompanied by the manufacturer's instructions for use (if needed).

❖ Offer Catalogues and Drawings

The following items must be attached and submitted with the offer:

- Each offer should be attached with clear drawing of dimensions for each type, furthermore the Test Certificate for the offered materials should be submitted as well.
- Catalogues dealing with the material tendered should be attached to the offer including all details.
- Detailed reference list shall be enclosed with the offer.
- Samples

Note: A sample of each type should be submitted with the offer, knowing that any offer received without catalogues and samples, M/s EDCO has the right to reject this offer and withdraw it from evaluation without any prior notice.

4. Inspection And Testing

4.1 General

All materials shall be subjected to inspection and testing in accordance with IEC regulations or equivalent. EDCo representatives may attend these tests on supplier's account.

Adequate notice (**21 days minimum**) shall be given when the materials are ready for inspection or test and every facility shall be provided by the supplier to enable the purchaser to carry out the necessary inspections and tests.

All materials which are specified for test at the manufacturer's works shall satisfactorily pass such tests before being painted.

All instruments used for the purpose of testing shall be approved and calibrated at the expense of the Contractor by such body as may be approved.

Where type Tests are specified below, such shall be carried out in the presence of the purchaser or, alternatively, the supplier shall provide Certificates showing that such tests have been carried out satisfactorily supported with 3rd party certificate from STL group laboratory.

The following type tests shall be carried out in accordance with the relevant material or other approved specification, to the satisfaction of the purchaser .

One complete set of all equipment shall be subject to type tests covering: -

- a- Electrical tests.
- b- Mechanical tests.
- c- Material tests.
- d- Galvanizing tests if needed.

When such tests have been carried out previously and clear certificates of the test are available from an authorized test station, such certificates shall be accepted as declared above.

EDCO may call for routine test procedures to be carried out on all plant and equipment supplied under this contract.

Test voltage shall measure by means of either a crest voltmeter or an electrostatic voltmeter connected to the higher voltage side of the transformer supplying the test voltage, or a suitable instrument connected to the lower voltage side, calibrated by means of a sphere spark gap in accordance with the **IEC** recommendations or equivalent standards.

All electrical tests shall be carried out at a frequency of 50 complete cycles per second.

In all electrical tests the R.M.S. voltage shall be measured or calibrated in an approved manner, E= system **R.M.S.** kV at 50 HZ (the standard declared kV between phases)

In addition, the manufacturer must submit a test certificate to indicate the performance of a 5000- hour weather aging test according to relevant IEC. Also, documentations have to be provided to indicate that the test has been passed successfully. The test procedures must be performed by certified under STL umbrella *not more than ten (10) years before the date of tender announcement.*

5. DRAWINGS, DOCUMENTS AND MAINTENANCE INSTRUCTION

Drawing for approval shall be submitted in duplicates as paper prints and, after having been approved, the contractor shall supply six further copies, one copy at least being a reproduction on tracing cloth.

The following is the drawing and document which shall be submitted by the Bidder:

- A. General arrangement of lightning arresters
- B. Catalogues with clear marking for the offered materials as mentioned above.
- C. Type test certificates for all materials offered.
- D. Reference list of past supply for the manufacturer.

The following is list of drawings to be submitted by the Contractor for approval immediately after the commencement date or such other period as may be agreed with the purchaser:

- A. Drawing corresponding to all drawings submitted by the Supplier with his tender.
- B. Complete details of the equipment offered with all dimensions, including methods of erection and installation.
- C. Description details for the onsite testing and commissioning of the equipment as supplied.
- D. Details of the packaging for shipment of each section of the Contra Before the specified completion date of the Contract Works, the Contractor shall supply Maintenance Instructions, Diagrams and Record Drawings for examination and approval by the EDCO and shall submit seven further copies in the form approved by the EDCO each in a folder.

SCHEDULES AND GUARANTEES

<u>SCHEDULE NO.</u>	<u>DESCRIPTION</u>
A	Schedule of Requirements
B	Price Schedule
C	Guaranteed Delivery Periods Schedule
D	Manufacturer and Places of Manufacture, Testing and inspection Schedule
E	Technical Particulars and Guarantees Schedules
F	Reference List
G	Type test certificate
H	Departure from specifications Schedule

SCHEDULE (A)
SCHEDULE OF REQUIREMENTS

Item No.	Description	Stock Code	Unit Item	Quantity Required
1-	Disconnected hot sticks (Telescopic Type) Supplies with waterproof Bags as specified.		PCS	30
2-				
3-				
4-				

SCHEDULE (B)
PRICE SCHEDULE

Item No.	Description	Quantity & Unit	Unit Price & Currency		Total Price C&F Aqaba-Jordan
				
			FOB	C & F Aqaba	
1-	Disconnected hot sticks (Telescopic Type) Supplies with waterproof Bags as specified.	30 PCS			
2-					
3-					
4-					
TOTAL C&F AQABA PORT <i>(must appear in tender form)</i>					

* **IMPORTANT NOTE:** EDCO HAS THE RIGHT TO ACCEPT PARTIAL OFFERS AND TO AWARD PART OF THE ITEMS OR QUANTITIES WITHOUT ANY LIMIT OR NOTICE.

SCHEDULE (C)
GUARANTEED DELIVERY PERIODS

This Schedule shall be completed by the Tenderer and the periods

DESCRIPTION	DELIVERY PERIOD FOB PORT OF LOADING- SPECIFY PORT	DELIVERY PERIOD TO AQABA PORT- JORDAN
Disconnected hot sticks (Telescopic Type) Supplies with waterproof Bags as specified.		

entered shall be binding on the Contractor

Note: Delivery time shall not exceed (8) weeks, C&F Aqaba
port from the date of receipt of EDCO purchasing
order

SCHEDULE (D)
MANUFACTURERS, PLACES OF MANUFACTURE AND
TESTING

The Tenderer shall state the town and country where manufacture, testing and inspection take place.

DESCRIPTION	MANUFACTURER	PLACE OF MANUFACTURE	PLACE OF TESTING AND INSPECTION
Disconnected hot sticks (Telescopic Type) Supplies with waterproof Bags as specified.			

SCHEDULES (E)

TECHNICAL PARTICULARS AND GUARANTEES

This Schedule shall be completed by the tenderer, and particulars and guarantees will be binding on the contractor.

Disconnected hot sticks (E)

DESCRIPTION	PARTICULARS
<ul style="list-style-type: none">- Name of manufacturer- Manufacturer type reference- Total length.- Number of section.- Diameter.- Material used in manufacturing.- Approx Weight- Breaking load	

SCHEDULE (F)

SERVICE EXPERIENCE OF THE Disconnected hot sticks (F)

<u>Customer</u>	No. of units supply	No. of years in service	No. of recorded faults

SCHEDULE (G)

**LIST OF TYPE TEST CERTIFICATES FOR DISCONNECTED HOT STICKS
(G)**

Type test made on identical designs of equipment to those offered	Certificate No.	Certificate Authority

SCHEDULE (H)

DEVIATIONS FROM SPECIFICATION IF ANY
TO BE COMPLETED BY THE TENDERER

ITEM NO.	BREIF DESCRIPTION	DEVIATIONS



