

**UNITED ARAB EMIRATES**

**FEDERAL ELECTRICITY & WATER AUTHORITY**

**FEWA SPECIFICATION FOR  
PLUG-IN-TERMINATION FOR 33KV XLPE  
INSULATION CABLES**

**FEWA Specification for Plug-In-Cable  
Termination for 33kV XLPE Insulated Copper Cable.**

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**1. Standard Specifications:**

The plug-in-termination shall conform to the latest edition of international standard which shall be subject to the approval of the FEWA. One copy of specification in English language to which the terminations are manufactured and tested shall be submitted with the offer.

**2. Site Conditions:**

The terminations shall be installed indoors in U.A.E. in salt laden dusty atmosphere where the maximum humidity of 100% and maximum ambient temperature of 50 deg. C. can be experienced. The terminations shall be suitable for continuous operation at the above site conditions.

**3. Scope and nature of work:**

The specification provides for design, manufacture test at manufacturer's works in presence of FEWA representatives, suitable packing, transportation and off loading at FEWA stores in satisfactory condition and proper stacking as directed by FEWA or otherwise specified elsewhere. These terminations shall be used for XLPE insulated cable, indoor for 33kV system.

**4. System voltage, quality of terminations etc:**

Plug-in-terminations kits are required for XLPE insulated cables in 33kV nominal voltage, 50Hz, 3 phase system with system highest voltages of 36 kV respectively. Indoor terminations are required as per B.O. Q.

Components shall not be adversely affected in any manner by contact with other materials normally used in the construction of cable terminations and shall not increase the rates of corrosion of any metal with which they may come into contact. Assembled components forming part of a supply system shall perform without distress under the following conditions.

i) Normal condition:

- Continuous operation at a conductor temperature of 90 deg. C. for XLPE insulated cables.

ii) Fault conditions:

- Operation at a conductor and screen temperature of 250 deg. C. for XLPE.

**5. Types of cables for which Plug-In-Terminations are required.**

**5.1. 33kV Cables:**

Single core copper conductor of compacted circular stranded annealed plain wires, XLPE insulated, copper tape/wire screened and PVC over sheathed cables as per IEC 502/94 or otherwise as stated in the Bill of Quantity.

6. **Plug-In-Termination Kits:**

7. **Technical Specification:**

The Plug in cable termination to include separable connectors and bushing sizes suitable to 33kV 1x500 sqmm XLPE cable and 1x240 sqmm XLPE cable as specified in B.O.Q.

The bushing to be an electric bushing designed for equipment installation for 33kV Gas insulated circuit breakers switchgear (GIS). The bushing to be designed to meet the requirement of international standard of EN 50180, 50181, D/N 47637 or any equivalent international standard.

A separable connector to be plugged in to bushing and bolted mechanically. The system must be de energized when inserting or removing the connector. The absence of voltage may be tested on the capacitive voltage tap integrated in to the separable connector.

Special feature of the Plug-In-Termination.

- Metal enclosed.
- All insulated.
- Touch proof.
- Free from arching.
- High shot – circuit protection.
- Maintenance free.
- For indoor use.

A separable connector to be suitable for all cables to DIN VDE 0273 with

- i) Graphite – coated, washable outer conducting layer.
- ii) Extruded, strippable outer conducting layer, “easy strip”.

Detailed Technical Guarantee Particulars of the proposed 33kV 1x500 sqmm Copper XLPE and 33kV 1x240 sqmm Copper XLPE cable will be supplied at the time of approval of the design of the plug-in-termination.

**Plug-In-Termination Kit.**

(A) **Contract System.**

- (1) Contract ring.
- (2) Tension cone.
- (3) Thrust piece.

(B) **Insulating and field – controlling part.**

(C) **Housing.**

- (4) Bell flange.
- (5) Pressure sleeve.
- (6) Pressure spring.
- (7) Heat shrink tubing.
- (8) Test lead (depending on the design).

(9) Cable screen.

(D) Bushing.

(10) Female contact part.

(11) Insulating bushing.

(12) housing.

- Schedule of detailed guaranteed particular for Plug-in-termination to be submitted along with the offer.
- Schedule of Past experience of Manufacture to be submitted along with the offer.
- Original Catalog / literature, type test certificate copies to be submitted with the offer.

**SCHEDULE 'A'**

**SUB-MANUFACTURERS**

The Tenderer shall state below the names of the sub-manufacturers to the main manufacturer and details of the equipment proposed to be manufactured or supplied by them:

Name & Address of the Sub-Manufacturer	Description of Equipment

Signature : \_\_\_\_\_

Designation : \_\_\_\_\_

Name of Tenderer : \_\_\_\_\_

Date : \_\_\_\_\_

**SCHEDULE 'B'**

**PLACE OF MANUFACTURE, TESTING AND INSPECTION**

The Tenderer to complete the following schedule for all materials he proposes to supply

Item No.	Description	Manufacturer	Place of manufacture	Place of testing and inspection

Signature : \_\_\_\_\_

Designation : \_\_\_\_\_

Name of Tenderer : \_\_\_\_\_

Date : \_\_\_\_\_

**SCHEDULE 'C'**

**DEVIATION FROM TENDER SPECIFICATION**

Normally, the tender shall quote for all the items and quantities in the price schedule based on tender specification requirements. The basis of the offer submitted by the tenderer to arrive at the quote price should include compliance with specification requirements as well as deviations, if any. Such deviations, from the specification shall be brought out and tabulated in the table given below. The extra cost, if any, required by the tenderer to fully comply with the specification (assume deviation is not accepted by FEWA) shall be indicated against the each deviations. If extra cost is not indicated in the table given below, against the deviation, it shall be deemed that the tenderer has no extra cost to fully comply with the specification requirement.

SI No.	BOQ Item No.	Description As per BOQ	Qty.	Deviation from specification	Extra cost for Fully complying With specification

NB: Deviations other than those listed above will not be accepted under any circumstances.

Signature : \_\_\_\_\_

Designation : \_\_\_\_\_

Name of Tenderer : \_\_\_\_\_

Date : \_\_\_\_\_

**SCHEDULE 'D'**

**DETAIL OF PAST EXPERIENCE OF MANUFACTURER**

Name & Address	Quantity Supplied	Year of Supply	Remarks

Signature : \_\_\_\_\_

Designation : \_\_\_\_\_

Name of Tenderer : \_\_\_\_\_

Date : \_\_\_\_\_