

**TECHNICAL SPECIFICATION FOR DISC FITTING (T&C TYPE) 45 KN FOR  
OVERHEAD LINES**

**1. SCOPE:**

This specification covers the design, manufacturing, testing, supply and delivery of disc fitting suitable for use on high tension overhead power lines.

**2. APPLICABLE STANDARD:**

Unless otherwise stipulated in this specification the disc fitting shall comply with the latest edition of IS: 2486 (Part-I) 1993 and IS: 2486 (Part-II&III) 1989 or their latest version.

**3. GENERAL REQUIREMENTS:**

All forgings and casting shall be of good finish and free from flaws and other defects. The edges on out side of the fittings such as at the eye, clevis and holes shall be rounded.

All parts of different fittings which provides inter connection, shall be made such that sufficient clearance is provided at the connection point to ensure free movement and suspension of the insulator string assembly. All eye and clevis connection shall be free in such a manner that too much clearance between eye and tongue of the clevis is avoided.

All ferrous fittings and the parts other than those of stainless steel shall be hot dip galvanized in accordance with IS: 2669/1985 and IS: 6745/1972 or its latest edition if any and shall also fulfill the requirements of IS: 2633/1986 and 4759/1996 or their latest editions in respect of uniformity, thickness and weight of Zinc coating. The galvanizing should be uniform so as to give smooth finish. Small fitting parts like spring washer, nuts etc., shall also be hot dip galvanized.

**4. MATERIAL:**

The material for the string insulator fittings shall be such that is gives the required mechanical strength with specified dimensions. The following materials for particular type of fitting may be used.

- (a) Mild steel conforming to IS: 1570/1961
- (b) Forged steel conforming to IS: 2004/1970( or latest version or amendment).
- (c) Malleable iron conforming to IS: 14329/1995( or latest version or amendment)

- (d) Aluminum alloy (for clamps only). Preferably the composition of the Aluminum Alloy shall be declared by the manufacturer giving reference to the relevant Indian standard.

NOTE:- strain clamps of aluminum alloy only shall be acceptable. No other material composition except Aluminum alloy is acceptable for strain clamps.

Security clips and split pins shall be of phosphor bronze conforming to IS: 1385 of suitable temper with minimum hardness of 100HV conforming to IS: 410 (or latest version or amendment).

Cotter pins and Bolts shall be made of forged steel conforming to class 2 of IS: 2004 (or latest version or amendment).

All nuts shall be made of material conforming to proper class 4.8 of IS: 1367 (or latest version or amendment) with regard to its mechanical properties.

Spring washer shall be made of spring steel;

Plain washer shall be made of mild steel conforming to IS: 1570. (or latest version or amendment)

For galvanizing, Zinc conforming to grade Zn 98 of IS: 205, 1966 (or latest version or amendment) shall be used.

## **5.1 TENSION FITTING (T & C) TYPE 45 KN:**

5.1.1 The fitting shall be suitable for use with tongue and clevis type 11 KV Disc Insulators having E.M., strength of 4500 Kg. Conforming to IS: 2486 Part-II and IS: 731.

5.1.2 The fittings shall comprise of the following parts.

- (i) A set of cross arm straps complete with one 16 mm dia bolt, one spring washer, one nut and split pin suitable for fitting to cross arm channel having flanges 125 mm apart on one side and to the clevis on the other side as per fig., 26 of IS: 2486 (Part-II).
- (ii) Set of clevis cum snail type strain clamp complete with keeper having 'U' Bolt of 10 mm dia, nuts, plain washer, spring washer etc., and cotter bolt with drawing as per drawing enclosed. The clevis arrangement shall be as per fig. 25 of IS: 2486 (Part-II). The clamp shall be accommodating ACSR conductor up to size 100 mm<sup>2</sup> (ACSR Dog Conductor). The slip strength of the strain clamp shall not be less than 90% of the breaking strength of the conductor for which fitting are to be used.

5.1.3 The minimum failing load of complete disc fitting as well as that of clevis cum snail type strain clamp shall not be less than 4500 kgs. when tested in accordance with IS:2486 (Part-I)/1971.

#### **6.0 INSPECTION TESTING:**

Material shall be inspected and tested at the manufacturer's works / at stores of PVVNL to verify that these are being supplied in accordance with technical specification guaranteed technical particular and approved drawing, if any.

All instruments used in inspection and testing should be properly calibrated and sealed once a year. Calibration certificate when demanded by the inspecting officer shall be produced for verification purpose. In case of any dispute regarding calibration of instrument, instrument shall be sealed and signed by representative of the supplier and purchaser and will be sent to institution / laboratory of repute & govt. approved as decided by purchaser for calibration at the cost of the supplier. The result of such testing shall be binding on supplier.

#### **7.0 TESTS:-**

Disc fitting shall comply with all type, routine and acceptance tests as per IS: 2486 (Part-I)/Part-II or their latest amendment. They shall furnish all attested Photostat copy of latest type test certificate for the test in accordance with ISS from Govt. test house/recognized laboratory of repute along with certified copy of drawing with their offer. **The type test should be conducted within five years from the date of opening of tender.**

#### **7.1 ACCEPTANCE TESTS:-**

Acceptance tests as per relevant ISS (as per ISS: 2486 Part –I or their latest amendment) shall be carried out in the presence of inspection team for each lot offered.

#### **7.2 ROUTINE TESTS:**

Routine tests as per relevant ISS (as per ISS: 2486 Part-II or their latest amendment) shall be submitted along with every offer for inspection.

#### **8.0 The firm shall also submit along with their offer:-**

- (a) Test certificates for the items offered for the test showing the respective drawing duly signed by the testing laboratory authorities.
- (b) Detailed drawing of each item offered indicating the material composition, dimension etc.
- (c) Bill of materials for each items offered.

**9.0 MARKING:**

The tension clamp of the fittings shall be legibly and invariably embossed with the trademark of manufacturer & **PVVNL /MT/MM/-----** and sl. no. from 1 to last no of supply.

**10.0 PACKING:**

The packing of the fittings shall be done in rail worthy double gunny bags. The Gross weight of each packing shall not normally exceed 50 Kg.

**11.0 TOLRANCES:**

( $\pm$ ) 2.5% in dimensions only ( $\pm$  1 mm for dimensions less than 2.5mm).

**12.0 GUARANTEED TECHNICAL PARTICULARS :**

The bidders shall fill in the guaranteed technical particular in Performa enclosed as per schedule.