

SECTION – IV

TECHNICAL SPECIFICATION FOR THE TRANSFORMER WINDING WIRES **(DPC Aluminium Winding Wire)**

1. SCOPE: The specification provides for the manufacture, testing before dispatch, supply of round Aluminium wires, covered with two layers of paper insulation primarily intended for transformer windings.

2. STANDARDS: IS:6162 (Part-I) 1971

The tenderer shall go through the above specifications thoroughly and offers shall conform to the above specification.

3. SIZES & CONSTRUCTION

The DPC Aluminium winding wires (with thick covering) of the sizes as shown in the schedule of material shall be manufactured to strictly conform to the IS Specifications applicable.

4. WEIGHT OF REELS:

The normal weights of wire shall be in reels and 10 to 20 kg in single length for DPC Aluminium winding Wires with $\pm 5\%$ variation.

5. TEST & TEST CERTIFICATES:

The following test shall be carried out as per relevant IS in any recognized independent laboratory and test certificates shall be furnished along with the bid.

Before dispatch every consignment shall be offered for inspection to carry out all the tests as per IS. The routine test certificates for all the reels offered for inspection shall be furnished to this office along with the offer for approval before dispatch.

Sampling for testing shall be in accordance with IS: 6162 (part – I) – 1971.

S.No.	Tests	DPC (Al.) / SE Al
1	Diameter Measurement	Applicable
2	Elongation and Tensile test	Applicable
3	Resistance at 20°C	Applicable
4	Wrapping test	Applicable

6. PACKING & MARKING:

The wires shall be tightly and evenly wound on reels in such a direction that when unrolled, the exposed edge of the overlap of the outer layer of paper is towards the drum. The reels shall conform to IS-482-1981.

The label which is to be attached to the reels shall have the following information.

- Manufacturer's Name and Trade Mark.
- Grade of covering
- Nominal conductor dia
- Weight of wire

7. GUARANTEED TECHNICAL PARTICULARS:

The technical particulars as specified in the relevant IS shall be guaranteed, wherever not specified in the Guaranteed Technical Particulars annexed.

8. SAMPLES:

A sample piece of the windings wires shall accompany the tender. Tenders received without sample are liable for rejection.

9. IDENTIFICATION:

Each reel shall carry a label for identification with year of manufacture, the letters "APCPDCL" and manufacturer's name and brand name.

10. INSPECTION:

(a) (i) : The accredited representative of the DISCOM shall have access to the suppliers or his sub-contractor's works at any time during working hours for the purpose of inspecting the materials during manufacturing of the plant and equipment testing and may select test samples from the materials going into plant and equipment.

Inspection will be conducted at the premises of the supplier by the accredited representative of APCPDCL for conducting tests as per relevant IS.

You shall provide the facilities for testing such samples at any time. As soon as the materials are ready, you shall duly advise the CPDCL and carryout the tests before the representatives of the CPDCL. The despatch shall be effected only if the test results comply with the specification. The despatches shall be made only after the inspection by the CPDCL's officer is completed to CPDCL's satisfaction or such inspection is waived by this office.

(ii) The CPDCL may at its option get the materials inspected by a third party offered for inspection along with a CPDCL's representative if it feels necessary. The inspection charges shall be borne by you.

10 (b): Testing :

The purchaser has the right to have the type tests to be carried out at the supplier cost at any time during guarantee period by an independent agency i.e. CPRI/ any NABL accredited lab at any time during guarantee period.

IMPORTANT NOTE: As per the instructions of Director, Ministry of Power, Govt Of India vide Lr. No.25-11/6/2018-PG, Dt.02.07.2020

a) All equipment, components, and parts imported for use in the manufacturing of DTRs shall be tested to check for any kind of embedded malware/Trojans/cyber threat and for adherence to Indian standards.

b) All such testings shall be done in certified laboratories that will be designated by the Ministry of Power (MoP).

c) Any import of equipment/components/parts from "prior reference" countries i.e. CHINA, PAKISTAN or by persons owned by, controlled by, or subject to the jurisdiction or the

directions of these “prior reference” countries will require prior permission of the Government of India.

d) Where the equipment/components/parts are imported from “prior reference” countries, with special permission, the protocol for testing in certified & designated laboratories shall be approved by the Ministry of Power (MoP).

e) The above shall apply to any item imported for end use or to be used as a component, or as a part of manufacturing, assembling of DTR or any activity directly or indirectly related to power supply system.

11. ISI CERTIFICATION/MARKING:

Tenderers shall indicate whether they have ISI certificate/markings or not. Tenderers whose products bear ISI marking may be given preference.

12. LEAFLETS AND DESCRIPTIVE LITERATURE: Full descriptive particulars and working drawings of the materials offered should accompany the tender. Information regarding the country of manufacture or origin of materials used in the manufacture of the articles should be furnished.

13. GUARANTEE : The material shall be guaranteed by you for satisfactory operation for a period of 18 months from the date of receipt or 1 year from the date of putting in service which ever is earlier.

Note: It is not binding on the purchaser to accept the lowest or any tender. The purchaser reserves the right to place orders for individual items with different tenderers. The quantities are all subject to modifications at the time of placing the orders.

14. PRICES: Prices are Firm.

**CHIEF GENERAL MANAGER/P&MM
APCPDCL :: VIJAYAWADA**

ANNEXURE
GUARANTEED TECHNICAL PARTICULARS FOR DPC ALUMINIUM WINDING
WIRES

16 SWG DPC ALUMINIUM WINDING WIRE

Sl. No.	Particulars	1.6 Sq mm (16 SWG)
1	Reference to	IS: 6162 – 1971 (with latest amendment)
2	i) Bare wire diameter in mm Nominal	1.6
	ii) Tolerance plus or minus mm	0.016
3	Overall diameter in mm	1.915
4	Increase in diameter in mm	0.25
5	Width of paper	As per clause 6.2 of IS-6162 (part-I) 1971
6	Over lapping	Not less than 25%
7	Net weight of reels	10to 20 Kg (in single length)
8	Nominal D.C. resistance at 20 Deg. C. Ohms/meter	0.01393
9	Thickness of paper	Between 25 to 75 microns (Two papers wrapped in opposite direction)
10	Tensile strength mega newton/ SQ. Meter	
	Minimum	69
	Maximum	100
11	% Elongation (min).	15
12	Wrapping test	No Cracks

19 SWG SE ALUMINIUM WINDING WIRE

Sl. No	Particulars	SE Al. Winding Wire of Size 19SWG
1	Reference to IS	IS: 4800 Part I to V (with latest amendments) PART – 3 THICK COVERING
2	Nominal Conductor Diameter in mm	1.02mm
3	Conductor Tolerance + in mm	1%
4	i)Max. Overall Diameter in mm	1.02mm
	ii)Min. increase in Diameter in mm	0.01mm
5	Nominal Resistance at 20 C in Ohm. mtr	0.0343Ω/mtr or 0.34 Ω/mtr
6	Elongation (in %)	15%
7	Springiness Test Max. Spring back in Deg.	
8	Flexibility	No cracks
9	Peel Test Minimum Number of Revolution	No cracks
10	Jerk Test	No cracks
11	Resistance to Abrasion Ave& Min Force in Newtons	No cracks
12	Heat Shock Test	No cracks
13	Cut-Through Test	Shall pass 2 min at 240 ° C
14	Solvent Test	Shall pass 2 min at 240 ° C
15	Breakdown Voltage Min : KV	5.7KV

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