

Annexure-33
GUARANTEED TECHNICAL PARTICULARS OF
ARMOURED COPPER CONTROL CABLES

1	Name of manufacturer							
2	Standard applicable	IS:7098 (Part-I) – 1988 with latest amendments						
3	Rated Voltage	1100 volts						
4	Suitable for earthed or unearthed system	Both						
5	Permissible voltage & frequency variation for satisfactory operation.							
	a. Voltage	±10% than rated voltage at power frequency						
	b. Frequency	50 Hz						
6	Continuous current rating when laid in air in an ambient temp. 30 °C.	armoured number of core (4x10 sqmm copper cable)					04	
		Amp.					74	
7	Rating factor for variation in ambient air temp.(for cables laid direct in Air)							
	Air temp. in deg C	25	30	35	40	45		
	Rating factor	1.25	1.16	1.09	1	0.9		
8	Rating factor for variation in ground temp.(for cables laid direct in ground)							
	Ground temp. in deg C	15	20	25	30	35	40	45
	Rating factor (As per IS:3961: part-II)	1.17	1.12	1.06	1	0.94	0.87	0.79
9	Depth of laying for cables laid directly in this round.	750 mm rating factor 1.00						
10	Rating factor for variation in thermal resistivity of the soil (As per IS:3961-II-1967, Table-8)	Soil thermal resistivity in °C (cm/w) 100 120 150 200 250 300 1.10 1.05 1.00 0.92 0.86 0.81						
11	Current carrying capacity:							
	(a) Short circuit Amp. (RMS)	1.43 KAmps						
	(b) Duration of short circuit	1 sec						
	(c) Conductor temperature allowed for short circuit duty (70 Deg, Centigrade)	160 °C						
12	Loss tangent at normal frequency	Please furnish						
13	Dielectric constant at normal frequency	Please furnish						
14	Conductor:							
	a. Material	Annealed Copper Class-II						
	b. Normal cross sectional area	10 sq.mm						
	c. Number and diameter of wires	Please furnish						
	d. Received from (Supplier's name)							
15	Insulation:							
	a. Composition of insulation	Type-A:PVC (General purpose) IS:5831-1984						
	b. Thickness of insulation	1.0 mm for 10 sqmm						
	c. Tolerance on thickness of insulation	0.1mm + 0.1 t1 (nominal thickness)						
	d. Approximate diameter of sheath	As per IS						
	e. Specific insulation resistance at 60°C	Please furnish						
	f. Received from (Supplier's name)	Please furnish with drawing						
16	Colour scheme for identification	As per IS						

17	Inner sheath	
	a. Material	Unvulcanised Rubber/Thermoplastic material/proofed tape
	b. Extruded or wrapped	wrapped/extruded PVC
	c. Thickness of inner sheath	As per table 4 of IS: 1554 Part-I
	d. Tolerance of thickness of inner sheath	No tolerance
	e. Received from (Supplier's name)	
18	Outer sheath:	
	a. Material	Type ST 1 PVC compound as per IS: 5831-1984.
	b. Calculated diameter over the inner sheath	
	c. Thickness of the outer sheath	As per table 7 column 3 of IS: 1554 Part-I
	d. Tolerance of thickness of outer sheath	As per table 7 column 4 of IS: 1554 Part-I
	Received from (Supplier's name)	Please furnish with drawing
19	Overall diameter of cable over the outer sheath	21.4mm+/- 2 mm
20	Net weight of cable (Kg./Km.)	950
21	Conductor resistance at 20 ° C per Km.	7.41 Ohm/Km. max. for 2.5 sq.mm. 4.61 Ohm/Km. max. for 4 sq.mm
22	Reactance at 50 Hz per Km.	0.0837 Ohms per KM
23	Capacitance at 50 Hz per Km.	0.31 Mfds/Km
24	Insulation resistance at in M ohm Km.	
	i) at 27 deg	1×10^{13}
	ii) at maximum operating temperature	1×10^{10}
25	volume resistivity in ohm-Cm	
	i) at 27 deg	1×10^{13}
	ii) at maximum operating temperature	1×10^{10}
26	Conductor temperature corresponding to maximum continuous current	70°C
27	Test Voltage	
	a. High voltage test	AC 3 KV (rms) or DC 7.2 KV for five minutes at room temp.
	b. After immersion test voltage	3 KV (rms) raised to 6 KV (rms) within 10 sec. For 5 minutes at temp. 60+3oC & 1.2 KV D.C. for 240 hours.
28	Recommended minimum installation radius	15XD
29	Safe pulling force when pulled by pulling eye	50 N/mm ²
30	Cable drum	4C
	a. Maximum length per drum for each size of cable	500 M ±5% for each drum. Tolerance for total ordered quantity is ±2%.
31	Armour (a) Material	Galvanised steel round wire/ flat strip as per IS:3975
	(b) Nominal diameter of wire armour & thickness of flat strip (mm)	1.4
	(c) Type	Wire
32	Sequential length marking	Shall be provided on outer sheet of every one meter.

