

8546503/2024/EEMRT-ENE51

For EPC Contracts Only

THERMOCABLES LIMITED, HYDERABAD						
TRANSMISSION CORPORATION OF ANDHRA PRADESH LTD.						
STANDARDISED GUARANTEED TECHNICAL PARTICULARS FOR UNARMoured COPPER CONTROL CABLES						
S.NO.	DESCRIPTION	PARAMETERS/VALUES				
1	Material Description	CONTROL CABLES				
2	a) Type and description of the cable with size	Copper conductor PVC Insulated unarmoured cables as per IS:1554 (Part-1) 1988				
	b) Standards which they confirm to	IS : 1554(P-1). IS : 8130, IS : 5831				
	The type tests should have been conducted not earlier than 5 years in the Standard third party laboratory. The Manufacturer shall produce the type test reports at the time of acceptance tests.					
	c) Quality of material & standard to which conform	BIS				
	The Manufacturer shall produce the valid BIS certification at the time of acceptance tests.					
3	CONDUCTOR (Sq.mm)	2C x 2.5	4C x 2.5	6C x 2.5	10C x 2.5	12C x 2.5
	a) Material	Stranded Copper conductor as per IS:8130 class 2				
	b) Whether stranded	Yes				
	c) If so, number of strands	7	7	7	7	7
	d) Nominal Diameter of each strand before stranding(mm)	0.67	0.67	0.67	0.67	0.67
	e) Max.resistance at 20 Deg.C (Ohms/Km)	7.41				
4	INSULATION					
	a) Material	PVC Type A as per IS:5831				
	b) Nominal thickness (mm)	0.9	0.9	0.9	0.9	0.9
	c) Minimum tensile strength without ageing(N/sq.mm) and maximum % variation after ageing	12.5 & +/-20%				
	d) Minimum elongation at break without ageing(%) and maximum % variation after ageing.	150% & +/-20%				
	e) Minimum volume resistivity at					
	i) 27 Deg C (Ohm-Cm)	1 x 10 ¹³				
	ii) Max.rated temperature of 70 Deg C (Ohm-cm)	1 x 10 ¹⁰				
	f) Minimum insulation resistance constant at					
	i) 27 Deg C (Mega ohm km)	36.7				
	ii) Max.rated temperature of 70 Deg C (Mega Ohm-km)	0.037				
	iii) Whether application of insulation is by way of extrusion	Extrusion				
5	INNER SHEATH					
	a) Material	PVC as per IS:1554(Part I)				
	b) Minimum thickness of inner sheath (in mm)	0.3	0.3	0.3	0.3	0.3
	c) Whether method of application is by way of extrusion	Extrusion				

NOTE : DRAWING APPROVAL SUBJECT TO VALID TYPE TEST REPORTS.

TO BE CHECKED DURING ACCEPTANCE TESTS.

Chief Engineer
Projects

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6	OUTER SHEATH					
	a) Material	PVC ST-1 as per IS:5831				
	b) Nominal thickness (mm)	1.8	1.8	1.8	2.0	2.0
	c) Minimum tensile strength without ageing(N/sq.mm) and maximum % variation after ageing	12.5 & +/-20%				
	d) Minimum elongation at break without ageing(%) and maximum % variation after ageing.	150% & +/- 20%				
	e) Whether method of application is by way of extrusion	Yes, Extrusion				
	f) Are the inner and outer sheaths extruded in a single operation out of the material intended for outer sheaths	Inner and Outer Sheath shall be extruded Separately				
	g)Whether the PVC suitably treated for withstanding the working conditions.	YES				
	i) Inner &Outer sheath Colour	BLACK				
7	Physical parameters					
	a) Minimum fictitious Overall dia of core (mm)	3.6	3.6	3.6	3.6	3.6
	b) Minimum fictitious Calculated diameter over laid up cores (mm)	7.2	8.7	10.8	14.4	15.0
	c) Minimum fictitious Calculated diameter under the outer sheath(mm)	7.8	9.3	11.4	15.0	15.6
	d) Minimum fictitious Overall diameter of the finished cable (mm)	11.4	12.9	15.0	19.0	19.6
8	Drum length(mts)/tolerance (%)	1000 +/- 10% ingeneral or as per the requirement incase of short lengths.				
9	Electrical parameters					
	a) Rated voltage (volts)	1100 Volts				
	b) Voltage grade (volts)	1100 Volts				
	c) Whether suitable for earthed/unearthed system	Both				
	d) Short circuit current capacity for 1 sec	284.5 Amps				
	e) Max.Conductor temperature during shot circuit condition.	160 deg C				
10	Markings	As per IS 1554 (PART 1) & "APTRANSCO" to be embossed with an interval of one meter throughout the cable				
11	Identification	Cores shall be identified by different coloring of PVC insulation by adopting the following scheme:				
		a) 2 cores: Red and Black;				
		b) 4 Cores:Red, Yellow, Blue & Black				
		c)6, 10 & 12 cores Two adjacent core(counting and direction core) in each layer, blue & yellow remaining cores grey				

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TO BE CHECKED DURING ACCEPTANCE TESTS.

Drawing approval subject to valid vendor registration

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