NOTE: 1. DRAWING APPROVAL SUBJECT TO VALID TYPE TEST REPORTS, TO BE CHECKED DURING ACCEPTEANCE TESTS

8437878/2024/EEMRT-ENE51

2. FOR EPC CONTRACTS ONLY

Drawing approval subject to valid vendor registration

TCL CABLES PVT LTD

TRANSMISSION CORPORATION OF ANDHRA PRADESH LIMITED

STANDARDISED GUARNTEED TECHNICAL PARTICULARS FOR UNARMOURED COPPER CONTROL CABLES

SI	Description	Parameters / Values				
	Material Description	**CONTROL CABLES**				
	a) Type and description of the cable with size	Copper conductor PVC Insulated unarmoured cables as per IS : 1554(Part- I)-1988				
	b)Standards which they conform to	IS : 1554(P-I), IS 8130, IS : 5831				
	The type tests should have been conductes 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.					
	CONDUCTOR (Sq.mm)	**2 c x 2.5**	**4 c x 2.5**	**6 c x 2.5**	**10 x 2.5**	**12 c 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	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/mm2) 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 DegC (Ohm-Cm)	1×10^{13}				
	ii)Max.rated temperature of 70 Deg.C(Ohm-Cm)	1×10^{10}				
	f)Minimum insulation resistance constant at					
	i) 27 Deg C(Mega ohm/Km)	36.7				
	ii)Max.rated temperature of 70 Deg.C	0.037				
	(Mega ohm/Km)					
	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 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				

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TANDU SUDEEVAN KUMAR

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Chief Engineer/Projects

APTRANSCO/VS/Vijayawada.

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S	Description	Parameters / Values				
		2 c x 2.5	4 c x 2.5	6 c x 2.5	10 x 2.5	12 c x 2.5
6	**OUTER SHEATH**					
	a)Material	PVC Type 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/mm2) and maximum % variation after ageing	12.5 & +/-20%				
	d)Minimum elongation of break(%) 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 seperately				
	g)Whether the PVC suitably treated for withstanding the working conditions.	YES				
	h) Colour	BLACK				
7	Physical parameters					
	a)Minumum 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
	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(mtrs)/tolerance (%)**	1000 +/-10% ingeneral or as per the requirement incase of short lengths				
9	**Electrical parameters**					
	a)Rated voltage(volts)	1100Volts				
	b) Voltage grade(volts)	1100Volts				
	c)Whether suitable for earthed/Unearthed system	Both				
	d) Short circuit current capacity for 1 sec.	284.5 Amps				
	e) Max. conductor temperature during short 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 and yellow remaining cores gray				

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