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ARROW CABLES LIMITED

TRANSMISSION CORPORATION OF ANDHRA PRADESH LIMITED

STANDARDISED GUARANTEED TECHNICAL PARTICULARS FOR UNARMOURED COPPER CONTROL CABLES

Sl.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 (Part-1),IS-8130,IS5831				
	The Type tests should have been conducts 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					
3	**CONDUCTOR (Sq.mm.)**	2 C x 2.5	4 C x 2.5	6 C x 2.5	10 C 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	73
	d)Nominal Diameter of each strand before stranding (mm)	0.67	0.67	0.67	0.67	0.67
	e) Max. Resistance at 20^{0}C (Ohms/Km)	7.41	7.41	7.41	7.41	7.41
4	**INSULATION**					
	a)Material	PVC Type A as per IS 5831				
	b)Nominal thickness (mm)	0.90	0.90	0.90	0.90	0.90
	c)Minimum tensile strength without ageing (N/mm^2) 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^{0}C (Ohm-Cm)	1 x 10^{13}				
	ii) Max. rated temperature of 70^{0}C (Ohm-Cm)	1 x 10^{10}				
	f) Minimum Insulation resistance constant at					
	i) 27^{0}C (Mega Ohm/Km)	36.7				
	ii) Max. rated temperature of 70^{0}C (Mega Ohm/Km)	0.037				
	iii)Whether application of insulation is by way of extrusion	Yes, Extrusion				
5	**INNER SHEATH**					
	a) Material	PVC as per IS 1554(Part-1)				
	b)Minimum thickness inner sheath (mm)	0.30	0.30	0.30	0.30	0.30
	c)Whether method of application is by way of extrusion	Yes, Extrusion				

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6.	**OUTER SHEATH**					
	a)Material	PVC ST-1as per IS 5831				
	b) Nominal thickness (mm)	1.80	1.80	1.80	2.00	2.00
	c)Minimum tensile strength without ageing (N/mm^2) 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				
	h) Color	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 (mtrs)/tolerance (%)**	1000±10% in general or as per the requirement in case 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	Yes, Both				
	d) Short circuit current capacity for 1sec duration	284.5 A				
	e) Max. conductor temperature during short circuit condition	160 Dec C				
10	**Marking**	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 Core : Red & Black				
		b) 4 Core : 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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