

Attachment-5

230kV XLPE Power Cable:

GTP & technical requirement form:

(Bidder/manufacture may insert additional field of data if required as per detail specification described in volume-2)

No.	Description	Minimum Requirements		Guaranteed
		Unit	Data	
01	General			
	Manufacturer		Insert	
	Type		Insert	
	Model Designation		Insert	
	Country of Origin		Insert	
	Standards		EC 62067	
	Quality Control		ISO 9001 ISO 14001 ISO 18001	
	Type of conductor		Copper	
	Type of Insulation		XLPE	
	Ambient temperature for calculation			
	Average daily temperature	°C	40	
	maximum daily temperature	°C	50	
02	Voltage			
	Rated Voltage	kV	230kV	
	Maximum System Voltage	kV	245kV	
	Impulse withstand voltage	kV	1050	
	Power frequency withstand voltage	kV	460	
03	Cores			
	Number of cores		1 (one)	
04	Conductor			
	Standard		IEC 60228	
	Nominal Current	A	≥ 2000	
	Cross sectional area	mm ²	Insert [2000 mm ² (at least)]	

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No.	Description	Minimum Requirements		Guaranteed
		Unit	Data	
	Nominal Diameter	mm	Insert	
	Material		Annealed Copper	
	Design (standard of segmental)		Milliken (4/5 segment)	
05	Conductor Screen			
	Material		Semi conducting tape & Extruded semiconducting compound, cross linked	
	Thickness (approx.)	mm	Insert	
	Nominal Diameter over semi-conducting layer	mm	Insert	
06	Insulation			
	Material		XLPE	
	Process		Triple simultaneous extrusion	
	Type of curing (dry)		Dry Curing (VCV)	
	Average Thickness		23-25 mm	
	Minimum Thickness		Insert	
	Nominal Diameter over insulation		Insert	
07	Insulation screen			
	Material		Extruded semi conducting compound, cross linked	
	Thickness approx.		Insert	
	Nominal Diameter over semi conducting layer		Insert	
08	Metallic Screen/Sheath			
	Type		Corrugated Seamless Aluminium Sheath	
	Thickness (nominal)			
	Nominal Diameter over semi Metallic sheath	mm	Insert	
09	Longitudinal water tightness			
	Material		Semi-conducting swellable tape	
	Nominal thickness and width approx.		Insert	

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No.	Description	Minimum Requirements		Guaranteed
		Unit	Data	
10	Radial moisture barrier			
	Material		Laminated plastic coated aluminium tape / lead/copper	
	Nominal thickness and width approx.		Insert	
11	Outer Covering			
	Material		MDPE	
	Colour		Black	
	Minimum average thickness		Insert	
	Type of termite repellent		Insert	
12	Completed Cable		Insert	
	Overall diameter (approx.)	mm	Insert	
	Weight per meter (approx.)	kg	Insert	
13	Continuous Current carrying capacity based on the conditions special laid in the cable trench		SPB * & Trefoil	
	One circuit		Insert	
	Two circuit		Insert	
	Three circuit		Insert	
	Drawn into ducts (One Cable in duct)		Insert	
	One circuit			
	Two circuit		Same as mentioned above provided the length of into the duct shall not exceed 5 % of route	
	Three Circuit		Insert	
	In Air		Insert	
14	Max Conductor temperature			
	Laid direct ground	°C	Insert	
	Draw into ducts	°C	Insert	
	Elected in air	°C	Insert	

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No.	Description	Minimum Requirements		Guaranteed
		Unit	Data	
15	Permissible overload in service condition		2 hrs in a day 100 hrs in a month 500 hrs in total life	
16	Conductor short circuit current cable loaded as above prior to short circuit	KA/1sec	Insert	
	Carrying capacity for three second cable loaded	KA/3sec	Insert	
	Short circuit capacity of cable for 3sec	KA/3sec	Insert	
	Final conductor temperature	°C	Insert	
17	Sheath Earth Fault Current Carrying capacity for three second cable loaded as above prior to each fault	KA/1sec	50	
	Final Conductor temperature	°C	250°	
18	Max. Dielectric stress	kV/meter	Insert	
	on the conductor screen (assumed smooth)	kV/meter	Insert	
	on the insulation	kV/meter	Insert	
19	Minimum radius of bend around which cable can be laid		20 x overall diameter of cable in meters	
	Laid direct		Insert	
	In ducts		Insert	
	In air		Insert	
20	Nominal Internal diameter of pipes on ducts through which cable may be pulled (One cable in duct)		Insert	
21	Maximum DC resistance per km of cable at 20°C	ohm/km		
	Of conductor	ohm/km	Insert	
	Of metallic layer	ohm/km	Insert	

No.	Description	Minimum Requirements		Guaranteed
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22	Maximum ac resistance per km of cable at maximum conductor temperature	ohm/km	Insert	
23	Insulation Resistance per km of cable per core			
	At 20°C	mega ohm-km	Insert	
	At maximum rated temperature	mega ohm-km	Insert	
24	Equivalent star Reactance per meter of 1 - phase circuit at nominal frequency	ohm/km	Insert	
25	Maximum electrostatic capacitance per meter of cable approx.	μF/km	Insert	
26	Maximum charging current per core per meter pf cable at nominal voltage, U ₀	A/km	Insert	
27	Maximum dielectric loss cable per uncl of 3 phase circuit when laid direct in the ground ay nominal	W/m/phase	Insert	
28	Maximum induced voltage on metal sheath under fault condition (single core only)		Insert	
29	Maximum dielectric Dissipation factor of charging of cable when laid direct in the ground at nominal voltage U₀, normal frequency at			
	Conductor temperature of 20°C		Insert	
	Maximum conductor temperature of 90°C		Insert	
30	Sheath loss of cable per meter of phase circuit at nominal voltage U ₀ , normal frequency.	W/m/phase	Insert	
31	Cree page	Mm/kV	Insert	
	Total creepage distance of outdoor sealing approx. mm and porcelain.	mm	Insert	
32	Earth continuity copper Conductor (IF REQD)	mm ²	Insert	
33	Condition on which current carrying capacity are based			
	Soil thermal resistivity	°C-cm/W	Insert	
	Ground temperature	°C	Insert	

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No.	Description	Minimum Requirements		Guaranteed
		Unit	Data	
	Air temperature	°C	Insert	
	Burial depth	M	Insert	
	Axial spacing between phase cables	Mm	Insert	
	Axial spacing between circuits	Mm	Insert	
	Type of earth bonding.		Insert	
	Overall compliance with the requirements & detail specification described in volume-2	(yes/no)	Yes	

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