

Production Catalog

XLPE Insulated Power Cable at Rated Voltage 19/33kV

Executive Standard

This products will be manufactured as per BS 6622, BS EN/IEC 60228 standards.

Application Scopes

The cables are applied to power transmission and distribution system at rated voltage 19/33kV.

Operating Features

1. Rated Voltage: $U_0/U(U_m)$: 19/33(36)kV.

U_0 —Rated power frequency voltage between earth and metal shield to conductor for cable design;

U —Rated power frequency voltage among conductors for cable design;

U_m —Bearable max value of “Max System Voltage” for equipment.

2. Max conductor operating temperature at normal operation: 90°C for XLPE insulation.

3. Max conductor temperature during cable short circuit: 250°C for XLPE insulation (max. duration is 5 sec.)

4. Min. bending radius of cable during installation:

(1) Single-core cable: 15D.

(2) Multi-core cable: 12D.

D—Actual O.D of cable sample (mm)

5. Cable Installation

The ambient temp of cable installation shall not be less than 0°C, the cable shall be preheated if it is less than 0°C.

Cable structure

1. Conductor: category stranded copper conductor as per BS EN/IEC 60228.

2. Conductor screen: semi-conducting screen material.

3. Insulation: XLPE type GP8 as per BS 7655.

4. Insulation screen: semi-conducting screen material.

5. Metallic screen: copper tape or wire screen as per BS 6622.

6. Filler: polypropylene nets PP strip.

7. Wrapping tape: non-woven fabrics.

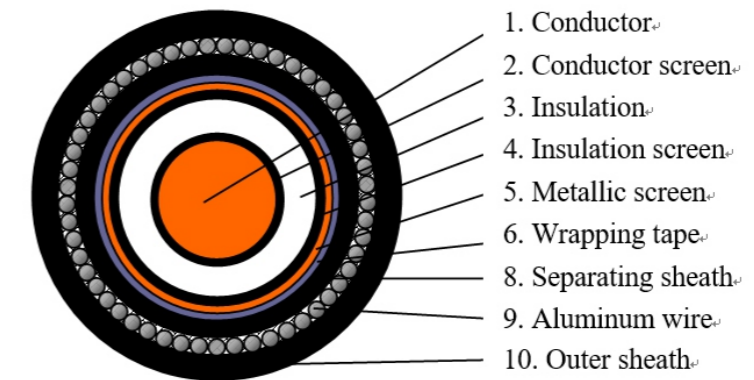
8. Separating sheath: PVC type 9 as per BS 7655.

9. Armor: aluminum wire for single-core cable, steel wire for multi-core cable.

10. Outer sheath: PVC type 9 as per BS 7655.

Technical parameter

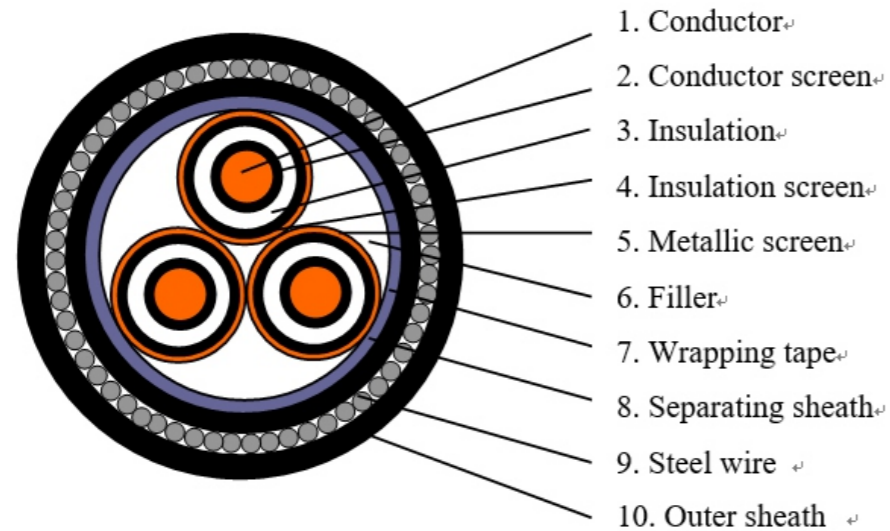
$U_0/U(U_m)$: 19/33 (36) kV Cu/XLPE/CTS/PVC/AWA/PVC



Nom. cross sect areas of conductor mm ²	Structure Parameters		Electrical Parameters		Current rating of cable				Conductor current at short circuit (5S) KA
	Outer diameter (approx) mm	Weight (approx.) kg/km	Max conductor D.C resistance at 20°C ≤Ω/km	Operating capacitance μF/km	Underground (20°C)		In Air (30°C)		
50	38.86	2802	0.387	0.1363	196	203	238	286	3.2
70	40.56	3118	0.268	0.1508	239	246	296	356	4.48
95	42.36	3496	0.193	0.1643	285	293	361	434	6.08
120	43.76	3831	0.153	0.176	323	332	417	500	7.67
150	46.76	4665	0.124	0.1893	361	366	473	559	9.59
185	48.56	5168	0.0991	0.2026	406	410	543	637	11.83
240	51.16	5935	0.0754	0.2207	469	470	641	745	15.35
300	53.36	6674	0.0601	0.2387	526	524	735	846	19.19
400	56.66	7769	0.047	0.2648	590	572	845	938	25.58

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U0/U (Um): 19/33 (36) kV Cu/XLPE/CTS/PVC/SWA/PVC



Nom. cross sect areas of conductor mm ²	Structure Parameters		Electrical Parameters			Current rating of cable		Conductor current at short circuit (5S) kA
	Outer diameter (approx.) mm	Weight (approx.) kg/km 76.72	Max conductor D.C resistance at 20°C ≤Ω/km	Conductor inductance mH/km	Operating capacitance μF/km	Underground (20°C)	In Air (30°C)	
50	76.72	9173	0.387	0.3963	0.1363	181	205	3.2
70	80.78	10296	0.268	0.3761	0.1508	220	253	4.48
95	84.63	11558	0.193	0.3605	0.1643	263	307	6.08
120	88.04	12742	0.153	0.349	0.176	298	352	7.67
150	91.69	14083	0.124	0.3376	0.1893	332	397	9.59
185	96.14	15966	0.0991	0.3278	0.2026	374	453	11.83
240	101.91	18453	0.0754	0.3154	0.2207	431	529	15.35
300	106.61	20846	0.0601	0.3067	0.2387	482	599	19.19
400	113.66	24288	0.047	0.296	0.2648	541	683	25.58

Cable current capacity calculation conditions:

Both end earthing is applied for cable metallic screen interconnection earthing.

Laying in Air

1. Multi-core cable laying: separated cabling laying. (Single cable is laid independent or the heat produced by adjacent cable has no effect on that cable)

2. Single core arrangement: trefoil formation: contact with each other

Flat formation: $S=De$ (three cables laid in flat arrangement, the distance between cable cores (s) is the cable outer diameter (De)).

3. Ambient temperature: 30°C.

4. Correction coefficient for current capacity under different ambient temperature:

Operating temp	Ambient temp. In air							
	20	25	35	40	45	50	55	60
90°C	1.08	1.04	0.96	0.91	0.87	0.82	0.76	0.71

Laying in soil:

1. Multi-core cable laying: separated cabling laying. (Single cable is laid independent or the heat produced by adjacent cable has no effect on that cable)

2. Single core arrangement: trefoil formation: contact with each other

Flat formation: $S=De$ (three cables laid in flat arrangement, the distance between cable cores (s) is the cable outer diameter (De)).

3. Buried depth: 800mm.

4. Soil thermal resistivity: 1.5 K·m/W

5. Ambient temperature: 20°C.

6. Correction coefficient for current capacity under different ambient temperature:

Operating temp	Ambient temp. In soil					
	10	15	25	30	35	40
90°C	1.07	1.04	0.96	0.93	0.89	0.85