

光纤复合海底电缆

Optical Fiber Composite Submarine Cable

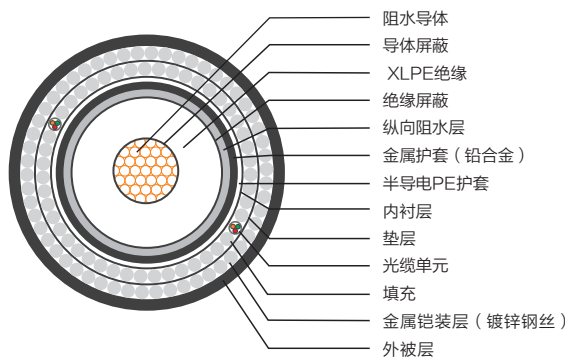
交流光纤复合海底电缆

AC Optical Fiber Composite Submarine Cable

交联聚乙烯单芯光纤复合海底电缆

Single core optical fiber composite submarine cable with cross-linked polyethylene insulation

产品结构图 Product Structure Diagram



Water blocking conductor
Conductor screen
XLPE insulation
Insulation screen
Longitudinal waterblocking layer
Metallic sheath(lead alloy)
Semi-conductive PE sheath
Inner covering
Bedding
Optical fiber unit
Filler
Armor(Galvanized steel wirer)
Serving



适用范围

适用于工频50-60赫兹。主要用于大陆与海岛、海岛与海岛、大陆与平台之间的大功率电力输送，以及智能电网控制信号传送和通信信号的传输。

Scope of Application

Applies to solidly earthed system with power frequency of 50-60Hz ,Mainly used for high-power electric power transmission between mainland and island, island and island, or mainland and platform; control signal transmission of smart grid and communication signal transmission.

使用特性

- ◎ 电缆导体允许的最高工作温度为90℃。
- ◎ 短路时（最长持续时间不超过5s）电缆导体的最高工作温度不超过250℃。
- ◎ 电缆敷设时环境温度应不低于0℃。
- ◎ 电缆敷设最小弯曲半径不小于20倍电缆实际外径。
- ◎ 电缆满足智能电网控制，传输通信信号，并能实现安全预警和测温控制。
- ◎ 工厂软接头有与电缆本体相同的电气性能和机械性能。

Operational Performance

- ◎ Maximal allowable operating temperature of cable conductor is 90℃.
- ◎ Under short circuit condition (Maximal duration does not exceed 5s). operating temperature of cable conductor shall not exceed 250℃.
- ◎ Ambient temperature shall not be lower than 0℃ while laying cable.
- ◎ minimal bending radius of cable shall not be smaller than 20 times of actual external diameter of cable.
- ◎ Cable shall meet smart grid control, transmit communication signal, and realize safety early-warning and temperature measure control.
- ◎ Factory joint shall have the same electric and mechanical performance of main body of cable.

单芯290/500kV海底光纤复合电缆主要技术参数（镀锌钢丝铠装）The Main Technical Parameters

规格 Specification	载流量 Current capacity(A)			电阻 Resistance(Ω/km)		电容 Capacitance (μF/km)	设计功率 (考虑功率因素0.85) Deaigned Power (the power factor is 0.85) (MVA)	最小弯曲 半径 Min.bending Radius (mm)	电缆外径 Cable Diameter (mm)	电缆重量 Weight of Cable (mm)	
	海床 Seabed	滩涂 Intertidal	陆地 Land	20℃导体最大的直流电阻	90℃导体最大的交流电阻					空气中 In Air	海水中 In Sea
				Max DC Resistance at 20℃	Max AC Resistance at 90℃						
1X800	1206	1099	902	0.0221	0.0315	0.127	664.0	3458	172.9	63144	39665
1X1000	1323	1203	985	0.0176	0.0233	0.137	725.1	3520	176.0	66231	41903
1X1200	1426	1293	1056	0.0151	0.0200	0.147	777.3	3602	180.1	70182	44707
1X1400	1521	1363	1108	0.0129	0.0174	0.157	815.6	3634	181.7	73146	47216
1X1600	1678	1509	1228	0.0113	0.0154	0.164	904.0	3706	185.3	76918	49950
1X1800	1753	1568	1274	0.0101	0.0140	0.174	937.8	3726	186.3	79340	52081
1X2000	1866	1669	1360	0.0090	0.0127	0.180	1001.1	3792	189.6	83041	54807
1X2200	1923	1721	1396	0.0082	0.0119	0.185	1027.6	3850	192.5	86200	57096
1X2500	2009	1797	1456	0.0072	0.0107	0.193	1071.8	3934	196.7	91113	60725

注：导体截面范围为800-3000mm²。载流量设计条件：①海床温度25℃，热阻0.7；②滩涂土壤温度25℃，热阻1.0；③陆地土壤温度40℃，热阻1.2。
 Note: Cross section of conductor is in range of 800-3000mm². The design condition of current carrying capacity: ① Seabed temperature 25℃, the thermal resistance 0.7; ② Intertidal soil temperature 25℃, the thermal resistance 1.0; ③ Land soil temperature 40℃, the thermal resistance 1.2.

单芯127/220kV海底光纤复合电缆主要技术参数（镀锌钢丝铠装）The Main Technical Parameters

规格 Specification	载流量 Current capacity(A)			电阻 Resistance(Ω/km)		电容 Capacitance (μF/km)	设计功率 (考虑功率因素0.85) Deaigned Power (the power factor is 0.85) (MVA)	最小弯曲 半径 Min.bending Radius (mm)	电缆外径 Cable Diameter (mm)	电缆重量 Weight of Cable (mm)	
	海床 Seabed	滩涂 Intertidal	陆地 Land	20℃导体最大的直流电阻	90℃导体最大的交流电阻					空气中 In Air	海水中 In Sea
				Max DC Resistance at 20℃	Max AC Resistance at 90℃						
1X400	684	583	447	0.047	0.061	0.117	144.8	2728	136.4	38034	23422
1X500	741	626	477	0.0366	0.0486	0.124	154.5	2792	139.6	40556	25247
1X630	792	693	502	0.0283	0.0387	0.136	162.6	2818	140.9	419664	404072
1X800	841	698	526	0.0221	0.0315	0.151	170.4	2860	143.0	44488	28427
1X1000	874	716	536	0.0176	0.0233	0.166	173.6	2922	146.1	47476	30712
1X1200	917	749	559	0.0151	0.0200	0.179	181.1	3008	150.4	51541	33775
1X1400	949	772	575	0.0129	0.0174	0.188	186.2	3080	154.0	54722	36095
1X1600	982	796	592	0.0113	0.0154	0.197	191.7	3152	157.6	58118	38610
1X1800	1011	818	608	0.0101	0.0140	0.205	196.9	3216	160.8	61579	41271
1X2000	1047	840	623	0.0090	0.0127	0.213	201.8	3282	164.1	65148	43998
1X2200	1066	859	636	0.0082	0.0119	0.220	206.0	3344	167.2	68419	46463
1X2500	1101	885	655	0.0072	0.0107	0.230	212.2	3428	171.4	73174	50101

注：导体截面范围为400-2500mm²。载流量设计条件：①海床温度25℃，热阻0.7；②滩涂土壤温度25℃，热阻1.0；③陆地土壤温度40℃，热阻1.2。
 Note: Cross section of conductor is in range of 400-2500mm². The design condition of current carrying capacity: ① Seabed temperature 25℃, the thermal resistance 0.7; ② Intertidal soil temperature 25℃, the thermal resistance 1.0; ③ Land soil temperature 40℃, the thermal resistance 1.2.

单芯64/110kV海底光纤复合电缆主要技术参数（镀锌钢丝铠装）The Main Technical Parameters

规格 Specification	载流量 Current capacity(A)			电阻 Resistance(Ω/km)		电容 Capacitance (μF/km)	设计功率 (考虑功率因素0.85) Deaigned Power (the power factor is 0.85) (MVA)	最小弯曲 半径 Min.bending Radius (mm)	电缆外径 Cable Diameter (mm)	电缆重量 Weight of Cable (mm)	
	海床 Seabed	滩涂 Intertidal	陆地 Land	20℃导体最大的直流电阻 Max DC Resistance at 20℃	90℃导体最大的交流电阻 Max AC Resistance at 90℃					空气中 In Air	海水中 In Sea
1X240	553	475	367	0.0754	0.0980	0.125	59.4	2236	111.8	25369	15552
1X300	597	508	390	0.0601	0.0780	0.135	63.2	2260	113.0	26113	16084
1X400	643	542	413	0.0470	0.0610	0.153	66.9	2284	114.2	27440	17197
1X500	688	575	437	0.0366	0.0486	0.169	70.8	2328	116.4	29207	18566
1X630	730	605	458	0.0283	0.0387	0.186	74.2	2374	118.7	31039	19973
1X800	771	636	479	0.0221	0.0315	0.207	77.6	2436	121.8	33853	22201
1X1000	835	684	513	0.0176	0.0233	0.223	83.1	2542	127.1	37502	24814
1X1200	872	711	532	0.0151	0.0200	0.242	86.2	2624	131.2	40918	27399
1X1400	907	737	550	0.0129	0.0174	0.256	89.1	2700	135.0	44235	29921
1X1600	938	761	567	0.0113	0.0154	0.269	91.8	2772	138.6	47625	32538

注：导体截面范围为240-1600mm²。载流量设计条件：①海床温度25℃，热阻0.7；②滩涂土壤温度25℃，热阻1.0；③陆地土壤温度40℃，热阻1.2。
 Note: Cross section of conductor is in range of 240-1600mm². The design condition of current carrying capacity: ① Seabed temperature 25℃, the thermal resistance 0.7; ② Intertidal soil temperature 25℃, the thermal resistance 1.0; ③ Land soil temperature 40℃, the thermal resistance 1.2.

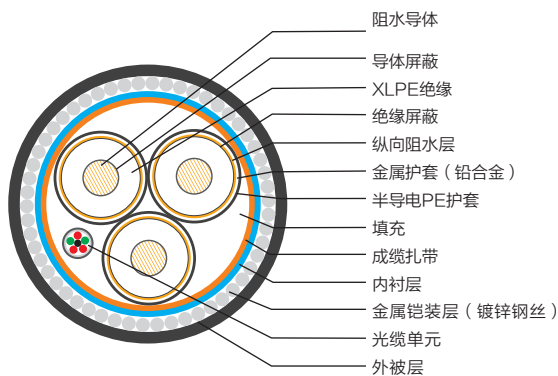
交流光纤复合海底电缆

AC Optical Fiber Composite Submarine Cable

交联聚乙烯三芯光纤复合海底电缆

3-core optical fiber composite submarine cable with cross-linked polyethylene insulation

产品结构图 Product Structure Diagram



Water blocking conductor
Conductor screen
XLPE insulation
Insulation screen
Longitudinal waterblocking layer
Metallic sheath(Lead alloy)
Semi-conductive PE sheath
Filler
Binder tape
Inner covering
Armor(Galvanized steel wirer)
optical fiber unit
Serving



适用范围

适用于工频50-60赫兹、额定电压127/220kV($U_m=252kV$)中性点直接接地输电系统。主要用于大陆与海岛、海岛与海岛、大陆与平台之间的大功率电力输送,以及智能电网控制信号传送和通信信号的传输。

Scope of Application

Applies to solidly earthed system with power frequency of 50-60Hz and rated volt of 127/220kV($U_m=252kV$),Mainly used for high-power electric power transmission between mainland and island, island and island, or mainland and platform; control signal transmission of smart grid and communication signal transmission.

使用特性

- ◎ 电缆导体允许的最高工作温度为90℃。
- ◎ 短路时(最长持续时间不超过5s)电缆导体的最高工作温度不超过250℃。
- ◎ 电缆敷设时环境温度应不低于0℃。
- ◎ 电缆敷设最小弯曲半径不小于15倍电缆实际外径。
- ◎ 电缆满足智能电网控制,传输通信信号,并能实现安全预警和测温控制。
- ◎ 工厂软接头有与电缆本体相同的电气性能和机械性能。

Operational Performance

- ◎ Maximal allowable operating temperature of cable conductor is 90℃.
- ◎ Under short circuit condition (Maximal duration does not exceed 5s). operating temperature of cable conductor shall not exceed 250℃.
- ◎ Ambient temperature shall not be lower than 0℃ while laying cable.
- ◎ minimal bending radius of cable shall not be smaller than 15 times of actual external diameter of cable.
- ◎ Cable shall meet smart grid control, transmit communication signal, and realize safety early-warning and temperature measure control.
- ◎ Factory joint shall have the same electric and mechanical performance of main body of cable.

三芯127/220kV海底光纤复合电缆主要技术参数 The Main Technical Parameters

规格 Specification	载流量 Current capacity(A)			电阻 Resistance(Ω/km)		电容 Capacitance (μF/km)	设计功率 (考虑功率因素0.85) Deaigned Power (the power factor is 0.85) (MVA)	最小弯曲 半径 Min.bending Radius (mm)	电缆外径 Cable Diameter (mm)	电缆重量 Weight of Cable (mm)	
	海床 Seabed	滩涂 Intertidal	陆地 Land	20℃导体最大的直流电阻 Max DC Resistance at 20℃	90℃导体最大的交流电阻 Max AC Resistance at 90℃					空气中 In Air	海水中 In Sea
3X400	683	614	507	0.047	0.061	0.117	164.2	3743	249.5	126048	77193
3X500	760	682	561	0.0366	0.0486	0.124	181.7	3846	256.4	134363	82730
3X630	844	754	619	0.0283	0.0387	0.137	200.5	3896	259.7	139446	86476
3X800	922	820	673	0.0221	0.0315	0.151	218.0	3956	263.7	147336	92721
3X1000	1018	899	734	0.0176	0.0233	0.166	237.7	4056	270.4	156604	99179
3X1200	1106	976	798	0.0151	0.0200	0.179	258.5	4196	279.7	170258	108815
3X1400	1174	1035	845	0.0129	0.0174	0.188	273.7	4311	287.4	180847	115974
3X1600	1231	1084	885	0.0113	0.0154	0.197	286.6	4428	295.2	192347	123905

注：导体截面范围为400-1600mm²。载流量设计条件：①海床温度25℃，热阻0.7；②滩涂土壤温度25℃，热阻1.0；③陆地土壤温度40℃，热阻1.2。
 Note: Cross section of conductor is in range of 400-1600mm². The design condition of current carrying capacity: ① Seabed temperature 25℃, the thermal resistance 0.7; ② Intertidal soil temperature 25℃, the thermal resistance 1.0; ③ Land soil temperature 40℃, the thermal resistance 1.2.

三芯64/110kV海底光纤复合电缆主要技术参数 The Main Technical Parameters

规格 Specification	载流量 Current capacity(A)			电阻 Resistance(Ω/km)		电容 Capacitance (μF/km)	设计功率 (考虑功率因素0.85) Deaigned Power (the power factor is 0.85) (MVA)	最小弯曲 半径 Min.bending Radius (mm)	电缆外径 Cable Diameter (mm)	电缆重量 Weight of Cable (mm)	
	海床 Seabed	滩涂 Intertidal	陆地 Land	20℃导体最大的直流电阻 Max DC Resistance at 20℃	90℃导体最大的交流电阻 Max AC Resistance at 90℃					空气中 In Air	海水中 In Sea
3X240	550	496	410	0.754	0.0980	0.125	66.4	2931	195.4	83172	53185
3X300	616	554	457	0.0601	0.0780	0.135	74.0	2976	198.4	86102	55187
3X400	695	622	513	0.0470	0.0610	0.153	83.1	3015	201.0	90133	58402
3X500	776	692	569	0.0366	0.0486	0.169	92.1	3085.5	205.7	96045	62813
3X630	863	767	630	0.0283	0.0387	0.186	102.0	3160.5	210.7	101949	67082
3X800	957	847	695	0.0221	0.0315	0.207	112.3	3261	217.4	110914	73794
3X1000	1020	897	733	0.0176	0.0233	0.223	118.7	3432	228.8	123377	82262
3X1200	1123	988	807	0.0151	0.0200	0.242	130.7	3564	237.6	134444	90105
3X1400	1191	1047	854	0.0129	0.0174	0.256	138.3	3687	245.8	145398	97946
3X1600	1250	1097	895	0.0113	0.0154	0.269	144.9	3804	253.6	156313	105802

注：导体截面范围为240-1600mm²。载流量设计条件：①海床温度25℃，热阻0.7；②滩涂土壤温度25℃，热阻1.0；③陆地土壤温度40℃，热阻1.2。
 Note: Cross section of conductor is in range of 240-1600mm². The design condition of current carrying capacity: ① Seabed temperature 25℃, the thermal resistance 0.7; ② Intertidal soil temperature 25℃, the thermal resistance 1.0; ③ Land soil temperature 40℃, the thermal resistance 1.2.

三芯26/35kV海底光纤复合电缆主要技术参数 The Main Technical Parameters

规格 Specification	载流量 Current capacity(A)			电阻 Resistance(Ω /km)		电容 Capacitance (μ F/km)	设计功率 (考虑功率因素0.85) (the power factor is 0.85) (MVA)	最小弯曲 半径 Min.bending Radius (mm)	电缆外径 Cable Diameter (mm)	电缆重量 Weight of Cable (mm)	
	海床 Seabed	滩涂 Intertidal	陆地 Land	20°C导体最大的直流电阻 Max DC Resistance at 20°C	90°C导体最大的交流电阻 Max AC Resistance at 90°C					空气中 In Air	海水中 In Sea
3X70	286	258	215	0.268	0.342	0.124	11.1	1749	116.6	27730	17052
3X95	340	306	253	0.193	0.247	0.134	13.0	1802	120.1	29591	18262
3X120	383	345	285	0.153	0.196	0.146	14.7	1853	123.5	31198	19219
3X150	427	385	316	0.124	0.159	0.156	16.3	1911	127.4	33706	20958
3X185	477	427	353	0.0991	0.128	0.167	18.2	1962	130.8	35860	22423
3X240	544	485	404	0.0754	0.098	0.181	20.8	2046	136.4	39715	25103
3X300	606	538	442	0.0601	0.079	0.197	22.8	2130	142.0	43766	27929
3X400	676	603	491	0.0470	0.063	0.217	25.3	2241	149.4	48878	31348
3X500	746	660	540	0.0366	0.050	0.360	27.8	2357	157.1	54923	35539

注：导体截面范围为35-800mm²。载流量设计条件：①海床温度25℃，热阻0.7；②滩涂土壤温度25℃，热阻1.0；③陆地土壤温度40℃，热阻1.2。
 Note: Cross section of conductor is in range of 35-800mm². The design condition of current carrying capacity: ① Seabed temperature 25℃, the thermal resistance 0.7; ② Intertidal soil temperature 25℃, the thermal resistance 1.0; ③ Land soil temperature 40℃, the thermal resistance 1.2.

三芯8.7/15(10)kV海底光纤复合电缆主要技术参数 The Main Technical Parameters

规格 Specification	载流量 Current capacity(A)			电阻 Resistance(Ω /km)		电容 Capacitance (μ F/km)	设计功率 (考虑功率因素0.85) (the power factor is 0.85) (MVA)	最小弯曲 半径 Min.bending Radius (mm)	电缆外径 Cable Diameter (mm)	电缆重量 Weight of Cable (mm)	
	海床 Seabed	滩涂 Intertidal	陆地 Land	20°C导体最大的直流电阻 Max DC Resistance at 20°C	90°C导体最大的交流电阻 Max AC Resistance at 90°C					空气中 In Air	海水中 In Sea
3X50	235	212	177	0.387	0.494	0.203	3.9	1184	78.9	13826	8937
3X70	286	257	213	0.268	0.342	0.222	4.7	1254	83.6	15574	10085
3X95	341	305	251	0.193	0.247	0.246	5.5	1307	87.1	17085	11127
3X150	430	382	316	0.124	0.159	0.295	7.0	1416	94.4	20752	13753
3X185	481	428	353	0.0991	0.128	0.318	7.8	1467	97.8	22558	15046
3X240	549	487	399	0.0754	0.098	0.350	8.8	1581	105.4	27667	18942
3X300	611	577	444	0.0601	0.079	0.387	9.8	1665	111.0	31029	21352
3X400	682	602	492	0.047	0.063	0.433	10.9	1782	118.8	36399	25314
3X500	752	662	541	0.0366	0.050	0.473	11.9	1898	126.5	41899	29331

注：导体截面范围为35-800mm²。载流量设计条件：1.海床温度25℃，热阻0.7；2.滩涂土壤温度25℃，热阻1.0；3.陆地土壤温度40℃，热阻1.2。
 Note: Cross section of conductor is in range of 35-1800mm². The design condition of current carrying capacity: 1. Seabed temperature 25℃, the thermal resistance 0.7; 2. Intertidal soil temperature 25℃, the thermal resistance 1.0; 3. Land soil temperature 40℃, the thermal resistance 1.2.