



水底电缆选型手册

UNDERWATER CABLE SELECTION MANUAL

双登电缆股份有限公司

SHUANGDENG CABLE CO., LTD

依据标准:Standards

GB / T 12706.2 额定电压 1kV ($U_m=1.2kV$) 到 35kV ($U_m=40.5kV$) 挤包绝缘电力电缆及附件

第 2 部分: 额定电压 6kV ($U_m=1.2kV$) 和 30kV ($U_m=36kV$) 电缆 Extruded insulated power cables and accessories for rated voltages 1kV ($U_m=1.2kV$) to 35kV ($U_m=40.5kV$) - Part 2: Cables for rated voltages 6kV ($U_m=1.2kV$) and 30kV ($U_m=36kV$)

GB / T 12706.3 额定电压 1kV ($U_m=1.2kV$) 到 35kV ($U_m=40.5kV$) 挤包绝缘电力电缆及附件

第 3 部分: 额定电压 35kV ($U_m=40.5kV$) 电缆 Extruded insulated power cables and accessories with a rated voltage of 1kV ($U_m=1.2kV$) to 35kV ($U_m=40.5kV$) - Part 3: Cables with a rated voltage of 35kV ($U_m=40.5kV$)

GB / T 31840.2 额定电压 1kV ($U_m=1.2kV$) 到 35kV ($U_m=40.5kV$) 铝合金芯挤包绝缘电力电缆

第 2 部分: 额定电压 6kV ($U_m=1.2kV$) 和 30kV ($U_m=36kV$) 电缆 Aluminium alloy core extruded insulated power cables with rated voltages 1kV ($U_m=1.2kV$) to 35kV ($U_m=40.5kV$) - Part 2: Cables with rated voltages 6kV ($U_m=1.2kV$) and 30kV ($U_m=36kV$)

GB / T 31840.3 额定电压 1kV ($U_m=1.2kV$) 到 35kV ($U_m=40.5kV$) 铝合金芯挤包绝缘电力电缆

第 3 部分: 额定电压 35kV ($U_m=40.5kV$) 电缆 Aluminium alloy core extruded insulated power cables with rated voltage 1kV ($U_m=1.2kV$) to 35kV ($U_m=40.5kV$) - Part 3: Cables with rated voltage 35kV ($U_m=40.5kV$)

Q/321204 KDL44 水底光电复合中压电缆 Underwater photoelectric composite medium voltage cable

适用范围: Application

本产品适用于额定电压 35kV 及以下交联聚乙烯绝缘光电复合防水及阻水电缆, 适用于港口、水电站、船闸、过江大桥、隧道、地铁等供电系统防水可靠性要求高的重要工程设施及基地, 特别是高降雨量地带、地势低洼潮湿地区和部分河沟地带的电力传输和信息传输; 不适用于海底敷设。This product is suitable for cross-linked polyethylene insulated photoelectric composite waterproof and water-blocking cables with a rated voltage of 35kV and below. It is suitable for important engineering facilities with high waterproof reliability requirements for power supply systems such as ports, hydropower stations, ship locks, cross-river bridges, tunnels, and subways, etc. Bases, especially power transmission and information transmission in high rainfall areas, low-lying humid areas and some river areas; not suitable for submarine laying

使用特性: Service characteristics

额定电压 Rated Voltage U_0/U 3.6/6kV、6/6kV、6/10kV、8.7/15kV、12/20kV、18/20kV、18/30kV、26/35kV

最高系统电压 maximum system voltage U_m 7.2kV、7.2kV、12kV、17.5kV、24kV、24kV、36kV、42kV

电缆导体的最高允许工作温度为 The maximum allowable operating temperature of the conductor is 90℃

短路时（最长持续时间不超过 5s）电缆导体的最高温度不超过 250℃ The maximum short-circuit temperature of the conductor shall not exceed 250 ° C (5s maximum duration)

电缆敷设时环境温度应不低于 0℃ The ambient temperature should not be lower than 0 ° C when the cable is laid

产品独有性能: Product unique properties

产品采用径向防水技术，彻底防止水份的渗透。The product adopts radial waterproof technology to completely prevent water penetration.

防水层同时具有屏蔽性能，需有效防止电缆内外电磁场的干扰。The waterproof layer also has a shielding performance, which should effectively prevent the interference of electromagnetic fields inside and outside the cable.

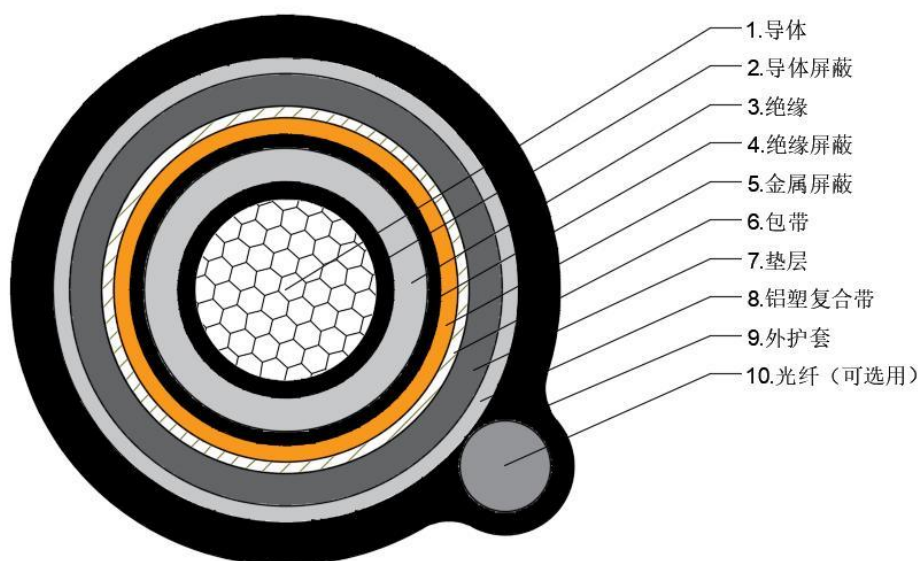
阻水层具有缓冲作用，降低电缆热膨胀引起的机械损伤。The water barrier layer have a buffer effect to reduce the mechanical damage caused by the thermal expansion of the cable.

型号规格: type and specification

型 号 type			芯数 core	标称截面 section mm ²	名 称 name
GFZS-YJPAY	GFZS-YJLP AY	GFZS-YJLHP AY	1、3	50~400 +光纤 optical fiber	铜(铝、铝合金)芯交联聚乙烯绝缘聚乙烯护套光纤复合防水电力电缆 Copper (aluminum, aluminum alloy) core crosslinked polyethylene insulation polyethylene sheathed fiber composite waterproof power cable
GFZS-YJPAY 63	GFZS-YJLP AY63	GFZS-YJLHP AY63	1	50~400 +光纤 optical fiber	铜(铝、铝合金)芯交联聚乙烯绝缘非磁性金属带铠装聚乙烯护套光纤复合防水电力电缆 Copper (aluminum, aluminum alloy) core crosslinked polyethylene insulated non-magnetic metal tape armored polyethylene sheathed fiber optic composite waterproof power cable
GFZS-YJPAY 73	GFZS-YJLP AY73	GFZS-YJLHP AY73	1	50~400 +光纤 optical fiber	铜(铝、铝合金)芯交联聚乙烯绝缘非磁性金属丝铠装聚乙烯护套光纤复合防水电力电缆 Copper (aluminum, aluminum alloy) core crosslinked polyethylene insulated non-magnetic metal wire armored polyethylene sheathed fiber composite waterproof power cable
GFZS-YJPAY 23	GFZS-YJLP AY23	GFZS-YJLHP AY23	3	50~400 +光纤 optical fiber	铜(铝、铝合金)芯交联聚乙烯绝缘钢带铠装聚乙烯护套光纤复合防水电力电缆 Copper (aluminum, aluminum alloy) core crosslinked polyethylene insulated steel tape armoring polyethylene sheathed fiber optic composite waterproof power cable

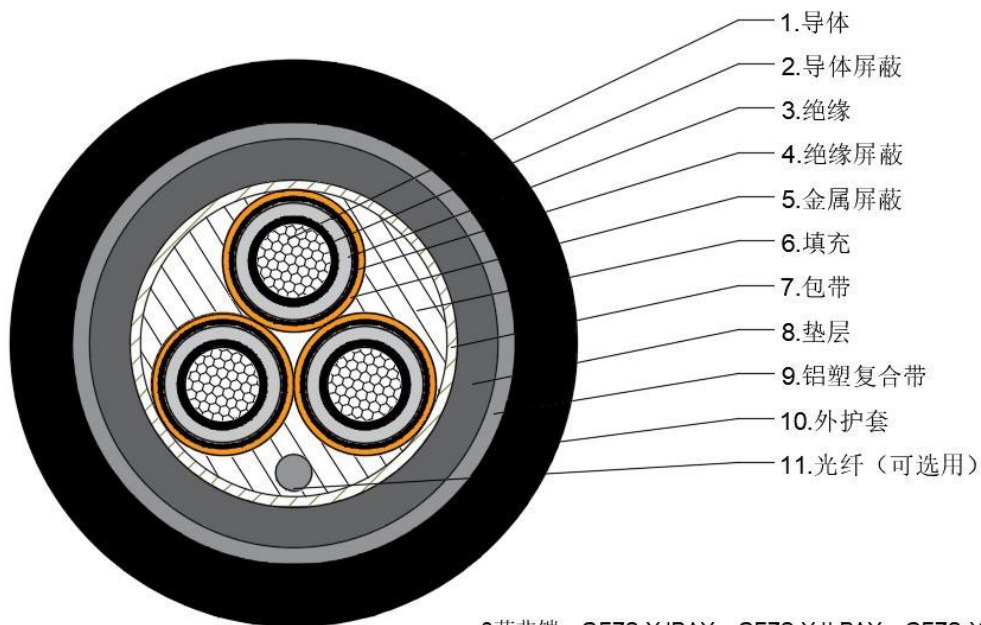
型 号 type			芯数 core	标称截面 section mm ²	名 称 name
GFZS-YJPAY 33	GFZS-YJLP AY33	GFZS-YJLHP AY33	3	25~400 +光纤 optical fiber	铜(铝、铝合金)芯交联聚乙烯绝缘 钢丝铠装聚乙烯护套光纤复合 防水电力电缆 Copper (aluminum, aluminum alloy) core crosslinked polyethylene insulated steel wire armouring polyethylene sheathed fiber optic composite waterproof power cable

结构示意图: structure illustration



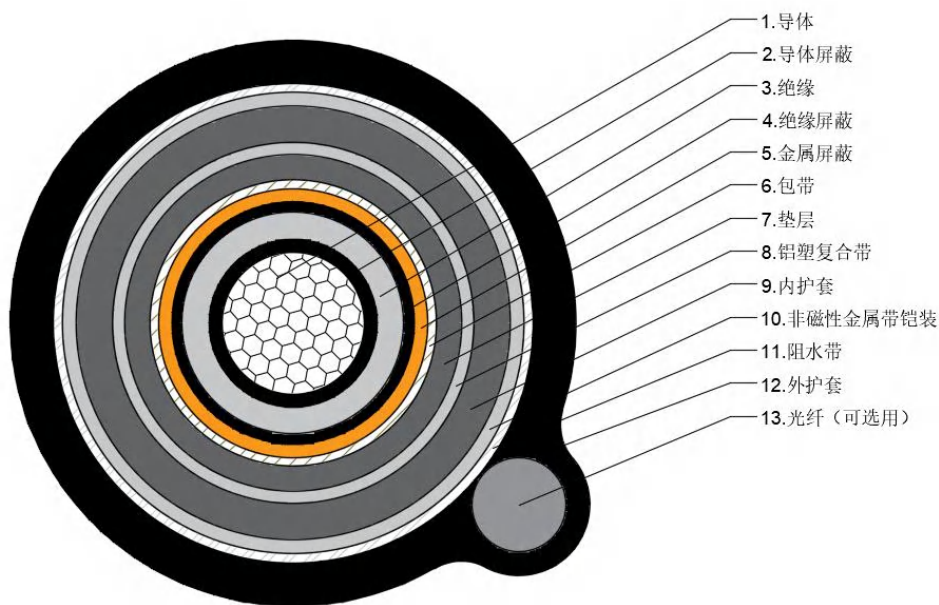
单芯非铠: GFZS-YJPAY、GFZS-YJLPAY、GFZS-YJLHPAY

- 1.conductor 2.conductor screen 3.insulation 4.insulation screen 5.metal screen 6.wrapping tape 7.Cushion layer
8.Aluminum-plastic composite tape 9.outer sheath 10.optical fiber(optional)



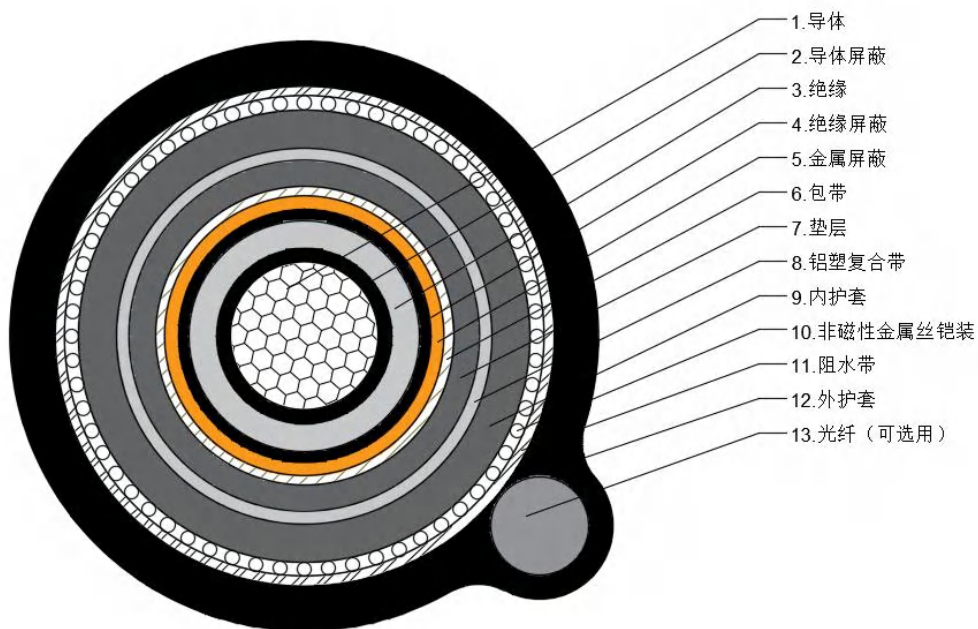
3芯非铠: GFZS-YJPAY、GFZS-YJLPAY、GFZS-YJLHPAY

- 1.conductor 2.conductor screen 3.insulation 4.insulation screen 5.metal screen 6.filling 7.wrapping tape 8.Cushion layer
9.Aluminum-plastic composite tape 10.outer sheath 11.optical fiber(optional)



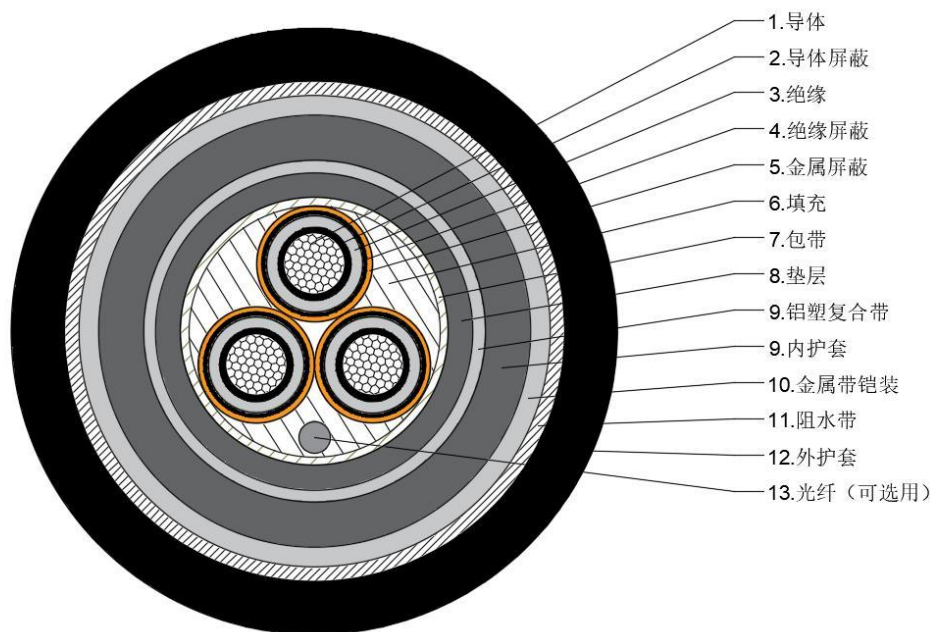
单芯金属带铠装:
GFZS-YJPAY63、GFZS-YJLPAY63、GFZS-YJLHPAY63

1. conductor 2. conductor screen 3. insulation 4. insulation screen 5. metal screen 6. wrapping tape 7. Cushion layer
8. Aluminum-plastic composite tape 9. inner sheath 10. Non-magnetic metal tape armor 11. Water-blocking belt 12. outer sheath 13. optical fiber (Can be selected)



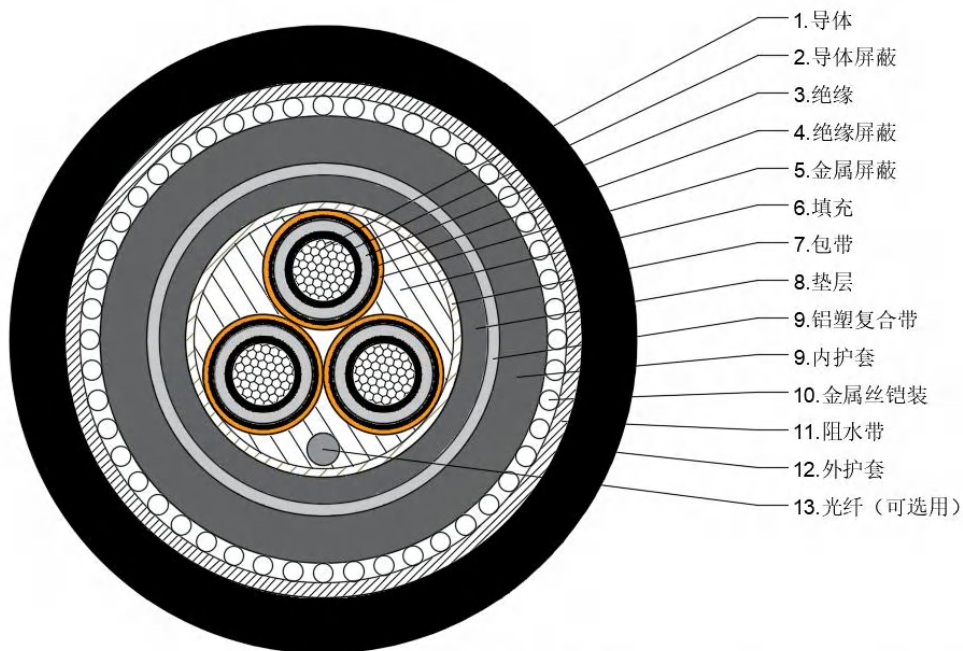
单芯非磁性金属丝铠装:
GFZS-YJPAY73、GFZS-YJLPAY73、GFZS-YJLHPAY73

1. conductor 2. conductor screen 3. insulation 4. insulation screen 5. metal screen 6. wrapping tape 7. Cushion layer
8. Aluminum-plastic composite tape 9. inner sheath 10. Non-magnetic metal tape armouring 11. Water-blocking belt 12. outer sheath 13. optical fiber (Can be selected)



3芯金属带铠装：
GFZS-YJPAY23、GFZS-YJLPAY23、GFZS-YJLHPAY23

1.conductor 2.conductor screen 3.insulation 4.insulation screen 5.metal screen 6.filling 7.wrapping tape
8.Cushion layer 9.Aluminum-plastic composite tape 9.inner sheath 10.metal tape armouring 11.Water-blocking belt
12.outer sheath 13.optical fiber(Can be selected)



3芯金属丝铠装：
GFZS-YJPAY33、GFZS-YJLPAY33、GFZS-YJLHPAY33

1.conductor 2.conductor screen 3.insulation 4.insulation screen 5.metal screen 6.filling 7.wrapping tape
8.Cushion layer 9.Aluminum-plastic composite tape 9.inner sheath 10.metal wire armouring 11.Water-blocking belt
12.outer sheath 13.optical fiber(Can be selected)

导体最大直流/交流电阻: Maximum DC/AC resistance of conductor

导体标称截面 Nominal cross section of conductor mm ²	20℃ Maximum DC resistance 最大直流 电阻 Ω /km		90℃ Maximum AC resistance 最大交流 电阻 Ω /km	
	铜 copper	铝/铝合金 Aluminum/Aluminum alloy	铜 copper	铝/铝合金 Aluminum/Aluminum alloy
10	1.83	3.08	2.33	3.9487
16	1.15	1.91	1.46	2.4487
25	0.727	1.2	0.927	1.5385
35	0.524	0.868	0.668	1.1130
50	0.387	0.641	0.493	0.8220
70	0.268	0.443	0.342	0.5681
95	0.193	0.32	0.246	0.4105
120	0.153	0.253	0.195	0.3247
150	0.124	0.206	0.158	0.2645
185	0.0991	0.164	0.1272	0.2108
240	0.0754	0.125	0.0972	0.1609
300	0.0601	0.1	0.0780	0.1290
400	0.047	0.0778	0.061	0.1010
500	0.0366	0.0605	0.0489	0.0789
630	0.0283	0.0469	0.0389	0.0619

绝缘标称厚度: Nominal insulation thickness

标称截面 Nominal cross section mm ²	电压等级 voltage						
	3.6/6kV	6/6kV 6/10kV	8.7/10kV 8.7/15kV	12/20kV	18/20kV 18/30kV	21/35kV	26/35kV
10	2.5	—	—	—	—	—	—
16	2.5	3.4	—	—	—	—	—
25	2.5	3.4	4.5	—	—	—	—
35	2.5	3.4	4.5	5.5	—	—	—
50	2.5	3.4	4.5	5.5	8.0	9.3	10.5
70	2.5	3.4	4.5	5.5	8.0	9.3	10.5
95	2.5	3.4	4.5	5.5	8.0	9.3	10.5
120	2.5	3.4	4.5	5.5	8.0	9.3	10.5

标称截面 Nominal cross section mm ²	电压等级 voltage						
	3.6/6kV	6/6kV 6/10kV	8.7/10kV 8.7/15kV	12/20kV	18/20kV 18/30kV	21/35kV	26/35kV
150	2.5	3.4	4.5	5.5	8.0	9.3	10.5
185	2.5	3.4	4.5	5.5	8.0	9.3	10.5
240	2.6	3.4	4.5	5.5	8.0	9.3	10.5
300	2.8	3.4	4.5	5.5	8.0	9.3	10.5
400	3.0	3.4	4.5	5.5	8.0	9.3	10.5
500	3.2	3.4	4.5	5.5	8.0	9.3	10.5
630	3.2	3.4	4.5	5.5	8.0	9.3	10.5

耐压试验、局放试验: Withstand voltage test, local discharge test

试验项目 test item	额定电压 Rated Voltage/kV						
	3.6/6	6/6、6/10	8.7/10、8.7/15	12/20	18/30	21/35	26/35
工频交流电压试验 Power frequency AC voltage test kV/5min	12.5	21	30.5	42	63	73.5	91
四小时工频交流电压 试验 Four hours frequency AC voltage test kV	/	24	35	48	72	84	104
局部放电试验 partial discharge test	≤5	≤5	≤5	≤5	≤5	≤5	≤5
U ₀ /kV	额定电压 Rated Voltage/kV						
		6	10	15	20	30	35
冲击电压试验 impulse voltage test kV		60	75	95	125	170	200

导体外径: Conductor overall diameter

标称截面 Nominal cross section mm^2	50	70	95	120	150	185	240	300	400	500
铜导体近似外径 outer diameter of copper conductor mm	8.1	9.2	10.8	12.2	13.5	15.1	17.4	19.4	21.9	26.4
铝导体近似外径 outer diameter of aluminum conductor mm	8.1	9.7	11.4	12.1	13.3	15.0	17.2	19.2	21.8	26.4
铝合金导体外径 Aluminum alloy conductor outer diameter mm	8.1	9.7	11.4	12.1	13.3	15.0	17.2	19.2	21.8	26.4

产品结构尺寸 (仅供参考): Product structure dimension (for reference only)

电压等级 voltage kV	芯数 core	标称截面 Nominal cross section mm^2	计算外径 Calculated outside diameter mm	电缆计算重量 Calculated weight kg/km	
				GFZS-YJPAY	GFZS-YJLPAY GFZS-YJLHPAY
3.6/6	1	25	23	586	436
3.6/6	1	35	24	701	488
3.6/6	1	50	25	837	554
3.6/6	1	70	26	1060	651
3.6/6	1	95	28	1342	777
3.6/6	1	120	30	1586	880
3.6/6	1	150	31	1871	999
3.6/6	1	185	33	2252	1145
3.6/6	1	240	36	2826	1380
3.6/6	1	300	38	3444	1626
3.6/6	1	400	41	4262	1963

电压等级 voltage kV	芯数 core	标称截面 Nominal cross section mm ²	计算外径 Calculated outside diameter mm	电缆计算重量 Calculated weight kg/km	
				GFZS-YJPAY	GFZS-YJLPAY GFZS-YJLHPAY
3.6/6	1	500	46	5450	2418
3.6/6	3	25	42	1782	1331
3.6/6	3	35	44	2132	1489
3.6/6	3	50	48	2549	1696
3.6/6	3	70	52	3017	1782
3.6/6	3	95	55	4159	2455
3.6/6	3	120	58	4947	2819
3.6/6	3	150	62	5842	3214
3.6/6	3	185	68	7081	3745
3.6/6	3	240	74	8875	4517
3.6/6	3	300	80	10808	5329
3.6/6	3	400	91	13429	6500
3.6/6	3	500	42	17140	8001
6/6、6/10	1	25	25	655	505
6/6、6/10	1	35	26	773	560
6/6、6/10	1	50	27	905	622
6/6、6/10	1	70	28	1140	731
6/6、6/10	1	95	30	1419	853
6/6、6/10	1	120	32	1676	969
6/6、6/10	1	150	33	1956	1084
6/6、6/10	1	185	35	2352	1245
6/6、6/10	1	240	37	2922	1476
6/6、6/10	1	300	39	3513	1695
6/6、6/10	1	400	42	4334	2034
6/6、6/10	1	500	47	5477	2445
6/6、6/10	3	25	43	1981	1530
6/6、6/10	3	35	46	2342	1699
6/6、6/10	3	50	48	2784	1931
6/6、6/10	3	70	52	3241	2006
6/6、6/10	3	95	56	4398	2694
6/6、6/10	3	120	59	5216	3088
6/6、6/10	3	150	62	6108	3480
6/6、6/10	3	185	66	7384	4048
6/6、6/10	3	240	72	9169	4811
6/6、6/10	3	300	76	11035	5556
6/6、6/10	3	400	82	13600	6670

电压等级 voltage kV	芯数 core	标称截面 Nominal cross section mm ²	计算外径 Calculated outside diameter mm	电缆计算重量 Calculated weight kg/km	
				GFZS-YJPAY	GFZS-YJLPAY GFZS-YJLHPAY
6/6、6/10	3	500	92	17223	8084
8.7/10、8.7/15	1	25	27	749	599
8.7/10、8.7/15	1	35	28	879	666
8.7/10、8.7/15	1	50	29	1018	735
8.7/10、8.7/15	1	70	31	1260	850
8.7/10、8.7/15	1	95	32	1545	980
8.7/10、8.7/15	1	120	34	1809	1102
8.7/10、8.7/15	1	150	35	2092	1220
8.7/10、8.7/15	1	185	37	2498	1391
8.7/10、8.7/15	1	240	40	3076	1630
8.7/10、8.7/15	1	300	42	3675	1857
8.7/10、8.7/15	1	400	45	4498	2198
8.7/10、8.7/15	1	500	49	5687	2654
8.7/10、8.7/15	1	630	53	7082	3184
8.7/10、8.7/15	3	25	48	2276	1824
8.7/10、8.7/15	3	35	51	2649	2007
8.7/10、8.7/15	3	50	53	3110	2257
8.7/10、8.7/15	3	70	57	3859	2624
8.7/10、8.7/15	3	95	61	4788	3084
8.7/10、8.7/15	3	120	64	5616	3488
8.7/10、8.7/15	3	150	68	6587	3960
8.7/10、8.7/15	3	185	71	7837	4501
8.7/10、8.7/15	3	240	77	9623	5266
8.7/10、8.7/15	3	300	81	11598	6119
8.7/10、8.7/15	3	400	87	14214	7284
8.7/10、8.7/15	3	500	97	17854	8716
8.7/10、8.7/15	3	630	106	22394	10648
12/20	1	35	30	964	751
12/20	1	50	31	1115	832
12/20	1	70	33	1353	943
12/20	1	95	34	1654	1088
12/20	1	120	36	1911	1205
12/20	1	150	37	2212	1340
12/20	1	185	39	2611	1504
12/20	1	240	42	3195	1749
12/20	1	300	44	3825	2007

电压等级 voltage kV	芯数 core	标称截面 Nominal cross section mm ²	计算外径 Calculated outside diameter mm	电缆计算重量 Calculated weight kg/km	
				GFZS-YJPAY	GFZS-YJLPAY GFZS-YJLHPAY
12/20	1	400	47	4645	2345
12/20	1	500	51	5847	2815
12/20	3	35	55	2911	2268
12/20	3	50	58	3400	2547
12/20	3	70	61	4165	2930
12/20	3	95	65	5114	3409
12/20	3	120	69	5958	3830
12/20	3	150	72	6926	4298
12/20	3	185	76	8212	4876
12/20	3	240	81	10023	5665
12/20	3	300	86	12046	6567
12/20	3	400	92	14669	7739
12/20	3	500	101	18353	9215
18/20、18/30	1	50	36	1383	1100
18/20、18/30	1	70	38	1633	1224
18/20、18/30	1	95	40	1949	1383
18/20、18/30	1	120	41	2217	1511
18/20、18/30	1	150	43	2542	1670
18/20、18/30	1	185	44	2955	1848
18/20、18/30	1	240	47	3559	2113
18/20、18/30	1	300	49	4210	2392
18/20、18/30	1	400	52	5050	2750
18/20、18/30	1	500	56	6291	3258
18/20、18/30	3	50	69	4319	3466
18/20、18/30	3	70	73	5123	3888
18/20、18/30	3	95	76	6136	4432
18/20、18/30	3	120	80	7035	4907
18/20、18/30	3	150	83	8004	5377
18/20、18/30	3	185	87	9418	6082
18/20、18/30	3	240	92	11396	7038
18/20、18/30	3	300	97	13394	7915
18/20、18/30	3	400	103	16121	9192
18/20、18/30	3	500	113	19955	10816
21/35	1	50	39	1491	1208
21/35	1	70	40	1745	1335
21/35	1	95	42	2068	1503

电压等级 voltage kV	芯数 core	标称截面 Nominal cross section mm ²	计算外径 Calculated outside diameter mm	电缆计算重量 Calculated weight kg/km	
				GFZS-YJPAY	GFZS-YJLPAY GFZS-YJLHPAY
21/35	1	120	44	2338	1632
21/35	1	150	45	2655	1783
21/35	1	185	47	3072	1965
21/35	1	240	50	3683	2237
21/35	1	300	52	4324	2505
21/35	1	400	55	5172	2872
21/35	1	500	62	6686	3653
21/35	1	630	39	1491	1208
21/35	3	50	75	4993	4140
21/35	3	70	78	5930	4695
21/35	3	95	82	7037	5333
21/35	3	120	86	7976	5848
21/35	3	150	89	9076	6448
21/35	3	185	93	10460	7124
21/35	3	240	98	12408	8050
21/35	3	300	103	14414	8935
21/35	3	400	109	17096	10167
21/35	3	500	125	22224	13118
21/35	3	630	134	26942	15234
26/35	1	50	41	1631	1348
26/35	1	70	43	1902	1493
26/35	1	95	45	2216	1651
26/35	1	120	46	2506	1800
26/35	1	150	48	2817	1945
26/35	1	185	50	3253	2146
26/35	1	240	52	3871	2425
26/35	1	300	54	4508	2690
26/35	1	400	57	5379	3079
26/35	1	500	65	6908	3875
26/35	1	630	69	8367	4470
26/35	3	50	80	5481	4628
26/35	3	70	84	6440	5205
26/35	3	95	88	7570	5866
26/35	3	120	91	8529	6401
26/35	3	150	94	9623	6995
26/35	3	185	98	11030	7694

电压等级 voltage kV	芯数 core	标称截面 Nominal cross section mm ²	计算外径 Calculated outside diameter mm	电缆计算重量 Calculated weight kg/km	
				GFZS-YJPAY	GFZS-YJLPAY GFZS-YJLHPAY
26/35	3	240	103	13037	8679
26/35	3	300	108	15069	9590
26/35	3	400	114	17789	10859
26/35	3	500	130	23129	14023
26/35	3	630	139	27950	16242

电压等级 voltage kV	芯数 core	标称截面 Nominal cross section mm ²	计算外径 Calculated outside diameter mm	电缆参考重量 Cable reference weight kg/km	
				GFZS-YJPAY23 /63	GFZS-YJLPAY23/63 GFZS-YJLHPAY23/63
3.6/6	1	25	30	862	712
3.6/6	1	35	31	989	776
3.6/6	1	50	32	1131	848
3.6/6	1	70	33	1371	961
3.6/6	1	95	35	1664	1098
3.6/6	1	120	36	1923	1217
3.6/6	1	150	38	2225	1353
3.6/6	1	185	41	2625	1518
3.6/6	1	240	43	3226	1780
3.6/6	1	300	46	4279	2461
3.6/6	1	400	49	5161	2861
3.6/6	1	500	55	6471	3449
3.6/6	3	25	51	2626	2175
3.6/6	3	35	54	3055	2413
3.6/6	3	50	56	3526	2673
3.6/6	3	70	60	4345	3110
3.6/6	3	95	64	5297	3593
3.6/6	3	120	67	6191	4063
3.6/6	3	150	71	7180	4553
3.6/6	3	185	75	8504	5168
3.6/6	3	240	81	10447	6089
3.6/6	3	300	87	12532	7053
3.6/6	3	400	94	16217	9287
3.6/6	3	500	104	20285	11179
6/6、6/10	1	25	31	944	794
6/6、6/10	1	35	32	1074	861
6/6、6/10	1	50	33	1218	935

电压等级 voltage kV	芯数 core	标称截面 Nominal cross section mm ²	计算外径 Calculated outside diameter mm	电缆参考重量 Cable reference weight kg/km	
				GFZS-YJPAY23 /63	GFZS-YJLPAY23/63 GFZS-YJLHPAY23/63
6/6、6/10	1	70	35	1462	1052
6/6、6/10	1	95	37	1769	1204
6/6、6/10	1	120	39	2033	1327
6/6、6/10	1	150	41	2339	1467
6/6、6/10	1	185	42	2744	1637
6/6、6/10	1	240	45	3726	2280
6/6、6/10	1	300	47	4372	2554
6/6、6/10	1	400	51	5256	2957
6/6、6/10	1	500	55	6505	3484
6/6、6/10	3	25	55	2939	2488
6/6、6/10	3	35	58	3334	2691
6/6、6/10	3	50	61	3867	3013
6/6、6/10	3	70	64	4687	3452
6/6、6/10	3	95	68	5657	3952
6/6、6/10	3	120	72	6569	4441
6/6、6/10	3	150	75	7532	4905
6/6、6/10	3	185	79	8920	5584
6/6、6/10	3	240	84	10847	6490
6/6、6/10	3	300	89	12844	7365
6/6、6/10	3	400	95	16419	9490
6/6、6/10	3	500	105	20396	11290
8.7/10、8.7/15	1	35	35	1196	983
8.7/10、8.7/15	1	50	36	1347	1064
8.7/10、8.7/15	1	70	37	1607	1197
8.7/10、8.7/15	1	95	40	1911	1345
8.7/10、8.7/15	1	120	41	2191	1485
8.7/10、8.7/15	1	150	43	2490	1618

电压等级 voltage kV	芯数 core	标称截面 Nominal cross section mm ²	计算外径 Calculated outside diameter mm	电缆参考重量 Cable reference weight kg/km	
				GFZS-YJPAY23 /63	GFZS-YJLPAY23/63 GFZS-YJLHPAY23/63
8.7/10、8.7/15	1	185	45	3301	2194
8.7/10、8.7/15	1	240	47	3927	2481
8.7/10、8.7/15	1	300	49	4583	2764
8.7/10、8.7/15	1	400	53	5481	3182
8.7/10、8.7/15	1	500	58	6788	3766
8.7/10、8.7/15	1	630	62	8271	4386
8.7/10、8.7/15	3	25	60	3342	2891
8.7/10、8.7/15	3	35	63	3764	3122
8.7/10、8.7/15	3	50	65	4298	3445
8.7/10、8.7/15	3	70	69	5120	3886
8.7/10、8.7/15	3	95	73	6177	4473
8.7/10、8.7/15	3	120	77	7103	4975
8.7/10、8.7/15	3	150	80	8173	5546
8.7/10、8.7/15	3	185	84	9510	6174
8.7/10、8.7/15	3	240	90	11437	7080
8.7/10、8.7/15	3	300	94	14411	8932
8.7/10、8.7/15	3	400	101	17229	10300
8.7/10、8.7/15	3	500	111	21256	12151
8.7/10、8.7/15	3	630	120	26178	14470
12/20	1	35	32	1250	1037
12/20	1	50	33	1405	1122
12/20	1	70	36	1669	1259
12/20	1	95	37	1978	1413
12/20	1	120	39	2262	1556
12/20	1	150	40	2908	2036
12/20	1	185	42	3354	2247
12/20	1	240	44	3986	2540

电压等级 voltage kV	芯数 core	标称截面 Nominal cross section mm ²	计算外径 Calculated outside diameter mm	电缆参考重量 Cable reference weight kg/km	
				GFZS-YJPAY23 /63	GFZS-YJLPAY23/63 GFZS-YJLHPAY23/63
12/20	1	300	48	4675	2857
12/20	1	400	51	5550	3250
12/20	1	500	55	6862	3841
12/20	3	35	66	4155	3512
12/20	3	50	69	4723	3870
12/20	3	70	73	5564	4329
12/20	3	95	77	6625	4921
12/20	3	120	81	7569	5441
12/20	3	150	84	8609	5981
12/20	3	185	88	10011	6675
12/20	3	240	93	12829	8471
12/20	3	300	98	15015	9536
12/20	3	400	104	17896	10966
12/20	3	500	114	21939	12833
18/20、18/30	1	50	39	1725	1442
18/20、18/30	1	70	40	2346	1936
18/20、18/30	1	95	42	2686	2120
18/20、18/30	1	120	44	2996	2290
18/20、18/30	1	150	47	3355	2483
18/20、18/30	1	185	48	3817	2710
18/20、18/30	1	240	51	4469	3023
18/20、18/30	1	300	53	5168	3349
18/20、18/30	1	400	56	6062	3762
18/20、18/30	1	500	60	7414	4392
18/20、18/30	3	50	77	5802	4949
18/20、18/30	3	70	80	6682	5447
18/20、18/30	3	95	84	7807	6103

电压等级 voltage kV	芯数 core	标称截面 Nominal cross section mm ²	计算外径 Calculated outside diameter mm	电缆参考重量 Cable reference weight kg/km	
				GFZS-YJPAY23 /63	GFZS-YJLPAY23/63 GFZS-YJLHPAY23/63
18/20、18/30	3	120	88	9598	7470
18/20、18/30	3	150	91	10673	8045
18/20、18/30	3	185	95	12244	8908
18/20、18/30	3	240	100	14420	10062
18/20、18/30	3	300	105	16604	11125
18/20、18/30	3	400	111	19560	12630
18/20、18/30	3	500	121	23757	14651
21/35	1	50	42	2259	1976
21/35	1	70	43	2559	2149
21/35	1	95	46	2935	2370
21/35	1	120	48	3251	2545
21/35	1	150	49	3589	2717
21/35	1	185	51	4089	2982
21/35	1	240	54	4754	3308
21/35	1	300	56	5429	3610
21/35	1	400	58	6370	4071
21/35	1	500	66	8114	5093
21/35	1	630	70	9659	5774
21/35	3	50	88	6767	5914
21/35	3	70	92	8623	7389
21/35	3	95	95	9884	8180
21/35	3	120	99	10967	8839
21/35	3	150	103	12212	9584
21/35	3	185	107	13726	10390
21/35	3	240	112	15880	11522
21/35	3	300	117	18083	12604
21/35	3	400	123	21010	14080

电压等级 voltage kV	芯数 core	标称截面 Nominal cross section mm ²	计算外径 Calculated outside diameter mm	电缆参考重量 Cable reference weight kg/km	
				GFZS-YJPAY23 /63	GFZS-YJLPAY23/63 GFZS-YJLHPAY23/63
21/35	3	500	139	26742	17637
21/35	3	630	148	31865	20157
26/35	1	50	50	2608	2325
26/35	1	70	52	2916	2506
26/35	1	95	53	3271	2705
26/35	1	120	55	3596	2890
26/35	1	150	57	3974	3102
26/35	1	185	59	4453	3346
26/35	1	240	61	5111	3664
26/35	1	300	63	5850	4032
26/35	1	400	66	6769	4469
26/35	1	500	74	8539	5517
26/35	1	630	78	10146	6260
26/35	3	50	94	8234	7381
26/35	3	70	97	9342	8107
26/35	3	95	101	10629	8925
26/35	3	120	105	12116	9973
26/35	3	150	108	12988	10342
26/35	3	185	112	14533	11173
26/35	3	240	117	16762	12373
26/35	3	300	122	19002	13484
26/35	3	400	129	21981	15001
26/35	3	500	145	28072	18902
26/35	3	630	154	33245	21453

电缆安装时的最小弯曲半径: Minimum bending radius during cable installation

项目 item	单芯电缆 single core cable		三芯电缆 three-core cable	
	无铠装 non-armored	有铠装 armoring	无铠装 non-armored	有铠装 armoring
安装时的电缆最小弯曲半径 Minimum bending radius of the cable during installation	20D	15D	15D	12D
靠近连接盒和终端时电缆 最小弯曲半径 Cable to connector and terminal Minimum bending radius	15D	12D	12D	10D
注 note: D 为电缆外径 is outside diameter of cable				

电缆装卸、运输、敷设要求: Cable handling, transportation, laying requirements

1、确认收货前应对电缆外观进行检查, 确认电缆本体、两端封帽无擦伤、撞伤、压伤等破损现象, 如有异常应及时联系我司, 否则视为交付产品的外观质量符合要求。Before accepting the goods, the appearance of the cable should be checked to ensure that the cable body and the sealing caps at both ends are free from any damage such as scratches, bumps, or crush. If any abnormality occurs, please contact us in time. Otherwise, the appearance quality of the delivered products shall be deemed to meet the requirements.

2、电缆吊装、运输、敷设过程要妥善保管, 电缆本体及两端封帽要确保无破损, 防止雨水或其它有害气体、液体进入电缆内部, 导致电缆电性能受到影响。光电复合电缆两端预留长度的光缆单元不能被单独施加外力、不能发生大于 45° 的弯折, 防止光纤折断, 难以接续。Cable shall be properly protected while hoisting, transportation, and in laying process, the cable and caps at both ends have to remain in good condition to prevent rain or other harmful gases, liquids into the cable, to affect cable electrical performance. The optical fiber power composite cable units with the reserved length at both ends cannot be applied by external forces alone or bend more than 45 degrees to prevent the optical fiber from being broken and difficult to connect.

3、电缆长时间存放处应干燥, 避免长时间暴露于露天或潮湿地方, 低烟无卤阻燃电缆(WDZ)、柔性防火电缆等产品不得长期处于露天环境下, 以免因长期暴晒导致电缆护套颜色变化及护套机械性能收到影响。Cable should be stored in dry place, avoid long-term exposure to open air or humid places, low-smoke halogen-free flame retardant cable (WDZ), flexible fireproof cable

should not be in open environment for a long time, so as to avoid cable sheath color fading and mechanical properties been affected.

4、电缆敷设前，应核对电缆型号、规格、额定电压是否正确，检验合格后方可允许敷设。Before laying the cable, model/type, specification and rated voltage of the cable should be check and confirmed.

5、安装敷设过程中，如因天气原因暂停敷设，电缆要放置于安全、干燥处，防止受到外力撞击，如电缆封帽已去掉，电缆端头应做好保护措施，防止湿气或雨水进入电缆内部。During the installation and laying, if suspended due to weather reasons, the cable should be placed in a safe and dry place to prevent external impact, if the cable cap has been removed, the cable end should take protective measures to prevent moisture or rain from entering the cable.

6、敷设时遇有中直接头、终端接头以及弯道处，应根据实际情况适当留有余量，以作为如后期电缆发生故障后备用。During laying, when comes to joints, couplings, ends or bended area, some cables should be reserved in case of maintenance in the future

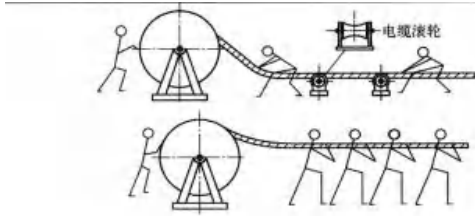
7、电缆敷设过程中，为了防止弯曲过度而损坏，电缆的弯曲半径应符合国标 GB/T31840-2015 标准规定规定：In the process of cable laying, in order to prevent excessive bending and damage, the bending radius of the cable should comply with the National Standard GB/T31840-2015

8、按国家标准要求，电缆敷设环境温度应不低于 0℃，寒冷季节敷设电缆时，敷设现场的温度低于 0℃时，应将电缆进行预先加热处理。敷设时间最好选择在环境温度较高时进行。According to the requirements of national standards, the ambient temperature of cable laying should not be lower than 0℃. When laying cables in cold season, when the temperature of the laying site is lower than 0℃, the cables should be pre-heated. It is recommend to laying in hot season.

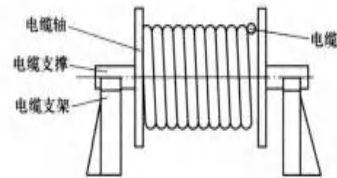
9、电缆施放时应按照电缆轴上箭头指示或图一所示电缆放线方向施放，切不可反方向滚动，以免因电缆松弛造成压线现象。The cable should be laid according to the direction of arrow shown on cable shaft or as shown in picture 1. Do not roll to the opposite direction to avoid compression caused by cable loosen.

10、电缆支架方式敷设时，支架设地点应选好，以敷设方便为准，一般应在电缆起止点附近为宜，应注意电缆轴的转动方向，电缆引出端应在轴的上方，见图二：When laying the cable support, the installation location should be selected, and the ease installation shall prevail.

Generally, it should be near the starting and ending point of the cable. Attention should be paid to the rotation direction of the cable shaft, and the cable leading end should be above the shaft, as shown in picture 2:

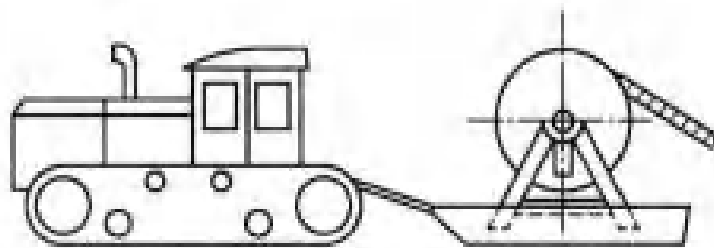


Picture1



picture2

11、电缆可采用图一所示人力拉引或图三机械牵引方法敷设（符合国标 GB50618-2016）。 the cable can be laid by manual pulling as shown in picture 1 or mechanical traction method as shown in picture 3 (in line with the national standard GB50618-2016).



图三 picture 3