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万达海缆 匠芯智造

WANDA SUBMARINE CABLE,MADE WITH ORIGINALITY AND WISDOM



目录 • CONTENTS

- 资质证书** 01 Qualification Certificate
- 企业文化** 03 Enterprise Culture
- 区域优势** 05 Regional Advantage
- 交货能力** 06 Delivery Capacity
- 设备优势** 07 Equipment Advantage
- 产品标准** 21 Products Standards
- 交流光纤复合海底电缆** 23 AC Optical Fiber Composite Submarine Cable
- 直流光纤复合海底电缆** 29 DC Optical Fiber Composite Submarine cable
- 交流海底电缆** 31 AC Submarine power cable
- 脐带电缆** 37 Umbilical Cable
- 岛屿海洋能开发电力系统应用** 39 The Island Ocean Energy Develop Power System Application
- 波浪能独立电力系统解决方案** 40 The Wave Energy Independent Power System Solution
- 海上钻井石油平台供电解决方案** 41 Offshore Oil Drilling Platform Power Solutions
- 岛屿电力传输解决方案** 42 Islands Power Transmission Solution
- 合作客户** 43 Cooperative Customers
- 附件产品** 44 Accessories
- 海缆售后服务** 46 Submarine Cable after-sale Service

万达海缆

Wanda Submarine Cable

山东万达海缆有限公司是中国万达集团投资成立的专业研发和制造6~220kV光纤复合海底电缆、轻型海缆、脐带电缆、±320kV及以下直流海缆等海洋工程系列用产品的专业化公司。公司成立于2008年，注册资金2亿元，占地面积78000平方米。公司位于山东省级开发区及对外开放一类港口的东营港经济开发区，地理位置优越。

公司业务范围涵盖海洋风力发电系统、沿海岛屿旅游开发、海上石油平台、海洋波浪能发电系统、清洁能源应用、港口码头等领域。产品品种齐全、质量优异，现已成功应用于国内油田石化系统、电信运营商、省电力公司等重大单位，并得到用户的广泛好评。

Shandong Wanda Submarine Cable Co.,Ltd was invested by China Wanda Group, which is a professionally researching and manufacturing company for 6~220 kV optical fiber composite submarine cable, light weight submarine cable, umbilical cable, DC submarine cable for voltage up to and including ±320 kV etc. ocean engineering series products. The company was established in 2008, with a registered capital of 200 million RMB, covering an area of 78,000 square meters. The company is located in Dongying port economic development zone with superior geographical position, which is a Shandong provincial-level development zone.

The business scope covers offshore wind power system, coastal island tourism development, offshore oil platform, ocean wave energy generation system, clean energy application, port wharf and other fields. The product variety is complete, the quality is excellent, and now have been successfully applied in the domestic oilfield petrochemical system, the telecommunication system, the province electric power company and other important units, which is getting the user's wide praise.



500强

连续9年入选中国企业500强
Selected as the top 500 Chinese enterprise
for nine years in succession

248项

获得国家专利248项
Obtained 248 national patents

55位

荣列中国民营企业500强第55位
Ranked 55th on list of China's top 500 private
enterprise

20位

荣列全省企业百强第20位
Ranked 20th on list of the whole Shandong province
top 100 enterprise

10位

荣列全省民营企业百强前10位
Ranked 10th on list of the whole Shandong province
top 100 private enterprise

- 全国五一劳动奖状
- 全国文明企业
- 重点高新技术企业
- 国家级守合同重信用企业
- 国家级企业科技园区
- 国家企业技术中心
- 国家级博士后科研工作站
- 国家火炬计划高新技术企业
- 国家级知识产权优势培育企业
- 山东省著名商标
- 山东省知识产权示范单位
- 山东省省长质量奖提名奖
- 山东省两化融合示范单位
- 山东工业突出贡献奖表彰奖
- 基层双拥创建模范单位
- 山东民营企业100强
- 最具爱心慈善捐赠企业
- 山东企业管理奖
- 山东省自主创新模范企业
- 省级文明单位
- 山东省优秀企业
- 山东省环保产业骨干企业
- 山东省环保优秀企业
- 最具爱心慈善捐赠企业
- 首届东营市企业管理奖
- 首届东营市功勋企业
- 东营市节能先进单位
- 十佳拥军企业
- 十佳环境友好企业
- 突出贡献企业
- 东营市诚信企业
- 诚信单位
- 先进单位
- 东营市首届市场质量奖
- 电线电缆制造业行业排头兵企业
- 万全牌电线电缆十佳品牌
- 万全牌中国驰名商标
- 标准化良好行为4A级企业
- 通过两化管理融合管理体系认证
- 通过知识产权管理体系认证
- 通过能源管理体系认证

资质证书

Qualification Certificate

Qualification Certificate

资质证书

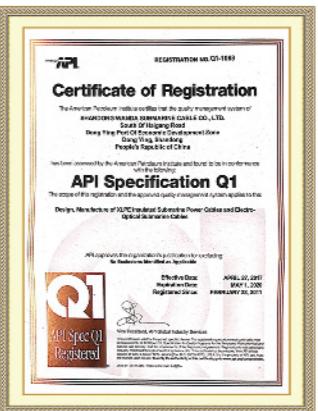
• 营业执照



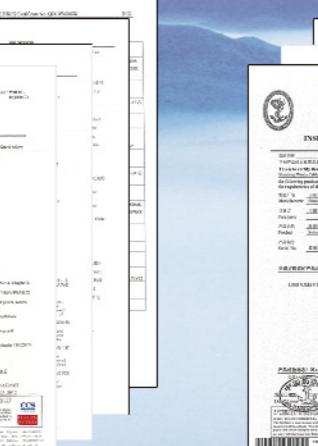
• DNV管理体系认证证书



• API管理体系认证证书

• 35kV含软接头
海缆型式试验报告

• ISO体系认证证书

• 110kV含软接头
海缆型式试验报告

▲ 中国船级社认证证书

▲ 船用产品检验证书

企业文化

Enterprise Culture

中国万达集团在自身不断发展壮大同时，一心不忘回馈社会。企业积极参与爱心助学、扶贫济困、救灾赈灾、携手慈善等活动，彰显了中国万达集团积极回报社会的强烈社会责任感。

通过多年文化沉淀及广泛教育，不但提高了职工的文明素养，也造就了企业发展的灵魂。

With the continuous development and expansion, China Wanda group does its best to reward the society. The group has actively involved in helping students with love, poverty alleviation, disaster relief, and charity activities and so on. These activities reveal China Wanda's strong social responsibility of positively rewarding society.

Through years of culture sedimentation and extensive education, it has not only improved civilization accomplishment of the workers, but also created and developed the soul of enterprise development.



Enterprise Culture

企业文化



区域优势

Regional Advantage

Delivery Capacity

交货能力

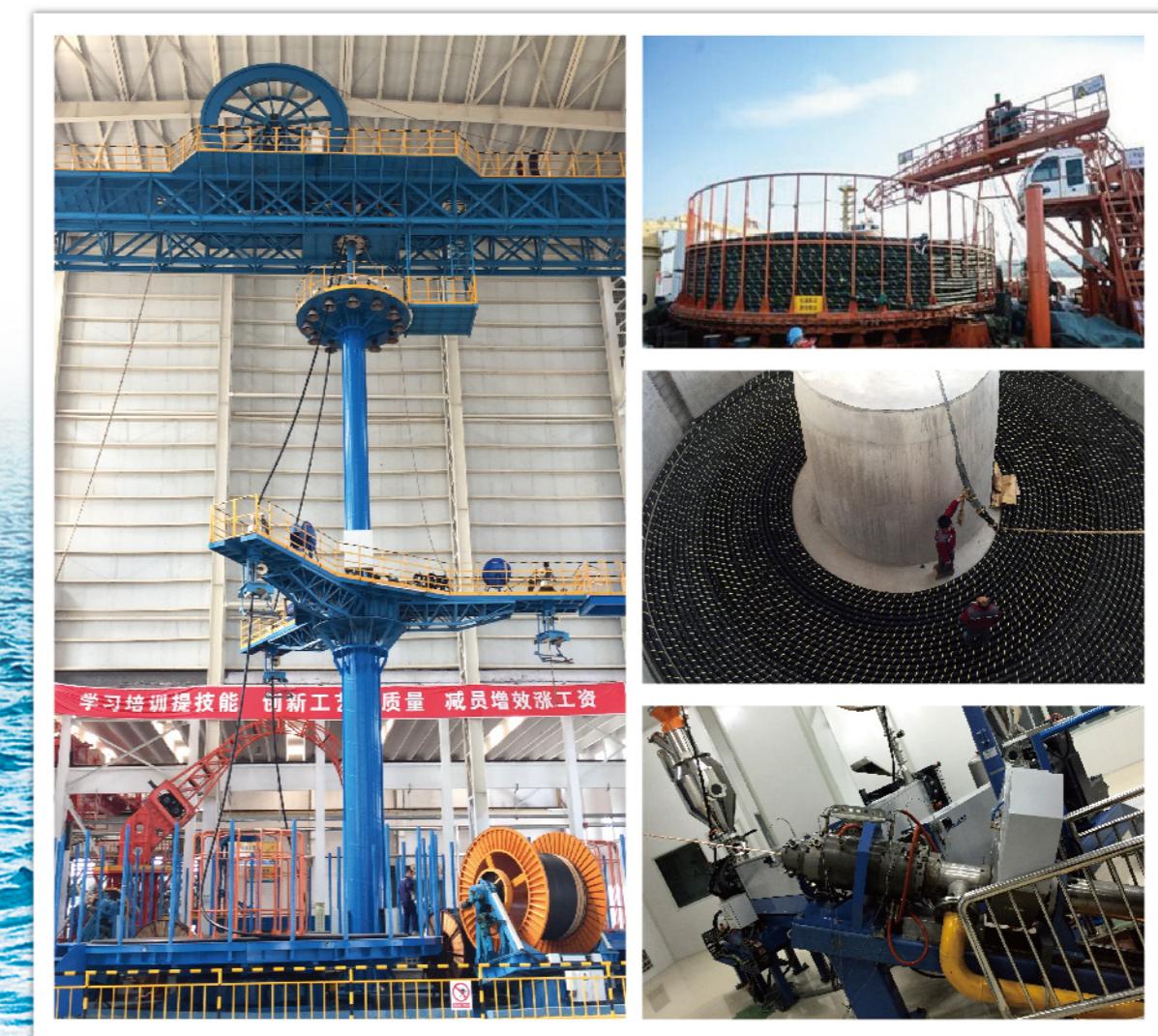
地处国家黄蓝两大战略经济发展规划区

Located in the national yellow and blue two strategic economic development planning zone



公司引进国际一流的芬兰麦拉菲尔的 220kV CCV 悬链生产线及配套设施，可实现绝缘生产线连续开车 15 天不停机。配套 10000/3+3150/12 的立式成缆联合铠装生产线及直径 24 米的托盘收线系统，满足 45 公里无接头海缆订单交货需求。

The company had equipped the 220kV CCV production line and supporting facilities of the international class of Finland Mallefer company, and which can drive the insulation production line continuously for 15 days without stopping. The company is equipped with 10000/3 + 3150/12 vertical laying up & armoring production line and a tray take-up system with Dia. 24 meter to meet the order delivery requirement of 45 kilometers without joint.



设备优势

Equipment Advantage

Equipment Advantage

设备优势

海缆产品依托于中国万达集团的【国家级企业技术中心】、【国家级博士后科研工作站】、【国家级实验室】及【超高压研发中心】等研发平台进行研发、设计及生产，采用国际一流的进口生产设备和检测仪器、优质的原材料、先进的生产工艺和严格的质量控制，保证了山东万达所供产品的卓越品质。

Relying on the R & D platform, including national enterprise technical center, national postdoctoral research station, national laboratory and ultra-high pressure research and development center of China Wanda group, the submarine cable has been designed and manufactured. With the international first-class import production equipment and testing instruments, high quality raw materials, advanced production technology and strict quality control, we guarantee the excellent products quality of Shandong Wanda.



设备优势

Equipment Advantage



设备优势

Equipment Advantage

11 模连续退火拉丝设备

11- die continuous annealing wire drawing machine

- 采用先进的4代PLC电气自动化控制系统
- 特制拉丝模具，可生产质量优良的铜单丝
- 进杆直径Φ8mm
- 出线直径Φ1.6 ~ Φ4.5mm
- 最多拉伸道次11道
- 最高线速度可达到28m/s

- Adopt advanced four generation PLC automatic control system
- Application of special manufactured drawing die can produce good quality copper wire
- Inlet copper wire bar diameter 8mm
- Outlet wire diameter from 1.6mm to 4.5mm
- 11 wire drawing process at most
- Maximum line speed can be up to 28m/s

127 盘框式绞线设备

127 bobbins rigid strander

- 国内第一个127盘框绞机
- 可制造2500mm²紧压圆形导体
- 最大紧压系数可达到0.93
- 配备连续自动上下盘装置，最大线速度可达61m/min
- 导体阻水材料自动添加系统

- The first 127 bobbins stranding machine at domestic
- It can produce compacted circular conductor with cross-section up to 2500 sq.mm
- Maximum compacted factor 0.93
- Continuous automatic loading device, with maximum production line speed 61m/min
- Conductor waterproof material automatic feeding system

设备优势

Equipment Advantage



220kV CCV 悬链式交联生产线——芬兰 Mallefer 制造
220kV CCV catenary cross-linked production line
---manufactured by Mallefer in Finland

- 可制造220kV 2500mm²的电缆绝缘线芯
 - 独特的挤出机和机头的设计、全程计算机控制技术，可以保证交联生产线长时间不停车运转（最长15天）而交联料不会产生焦烧
 - 配备德国OCS 超洁净颗粒扫描系统，保证产品质量
 - NCC交联计算软件，提供可靠的技术支持
 - 配有德国SIKORA公司在线外径测试仪、在线测偏仪；偏心率控制在5%之内
-
- It can produce insulated cable core with the cross-section up to 2500 sq.mm for rated voltage of 220kV
 - Unique extruder and triple cross-head design and whole line computer controlling technology can guarantee manufacturing line running in long time without stopping (maximum running time 15 days) and meanwhile cannot produce cross-linked material scorching in extruded cylinder
 - Equipped ultra clean particle scanning system from OCS company in Germany to guarantee product quality
 - NCC cross-linked software, which can provide stable technical support
 - With German SIKORA diameter test machine, online derivometer by which we can correct insulation eccentricity to be controlled no more than 5%

Ø200型大容量连续挤铅机
Ø200 type large-capacity continuous lead extruder

- 螺杆直径Ø200mm，挤包铅层直径范围Ø10mm~Ø160mm
- 配备有两个18T的熔铅炉，可连续开机10天以上
- 挤出量可达到45kg/min
- 配置铅护套测试系统，减小铅套厚度的不均匀性，确保铅护套厚度、偏心度

- Extrusion screw diameter 200mm; Cable diameter range 10mm~160mm
- 2 lead furnaces with capacity 18t,which can continuously drive more than 10 days
- Extrusion output can be 45 kg/min
- Application of lead sheath thickness online measuring methods, which can reduce the possibility of lead set thickness uniformity and insure the lead sheath thickness and eccentricity

设备优势

Equipment Advantage

**Φ200+Φ120型挤塑生产线****Φ200+Φ120 type extruder manufacturing line**

- 双机头设计，可生产复合护套结构
- 配备最大直径Φ200型挤出机，可生产外径达Φ180mm电缆的护层
- 最高牵引速度可达30m/min
- 水槽总长度28米，充分保证了护层质量
- 采用国际著名品牌SIMENS可编程控制器（PLC）控制，精确数字温度控制±2℃，自动化程度高，性能可靠

- The dual cross-head design, which can be used to manufacture composite structure sheath
- Equipped maximum diameter φ 200 extruded, cable sheath maximum outer diameter 180mm
- The maximum line speed is 30m/min
- Cooling water tube length 28m, which can adequately assure the sheath quality
- Adopt international well-know brand PLC control of SIMENS, equipment temperature control accuracy ±2 °C, with high automatic level and reliable performance

立式成缆联合铠装生产线**Vertical laying up joint armoring machine**

- 国内首创、自主研发的托盘式立式成缆和脐带缆盘式放线多功能联合铠装生产线全新的缆退扭装置设计，完全避免海缆因扭转力作用而产生内部应力
- 配备有3个直径10000mm超大型放线托盘，12个直径3150mm放线装置；可确保连续生产45千米无接头海缆
- 采用多皮带牵引，完全杜绝轮式牵引对海缆的弯曲破坏
- 配置钢丝张力自动调整装置及钢丝预扭头
- 钢丝放线盘数可达到150盘，可生产三芯海缆成品直径达380mm

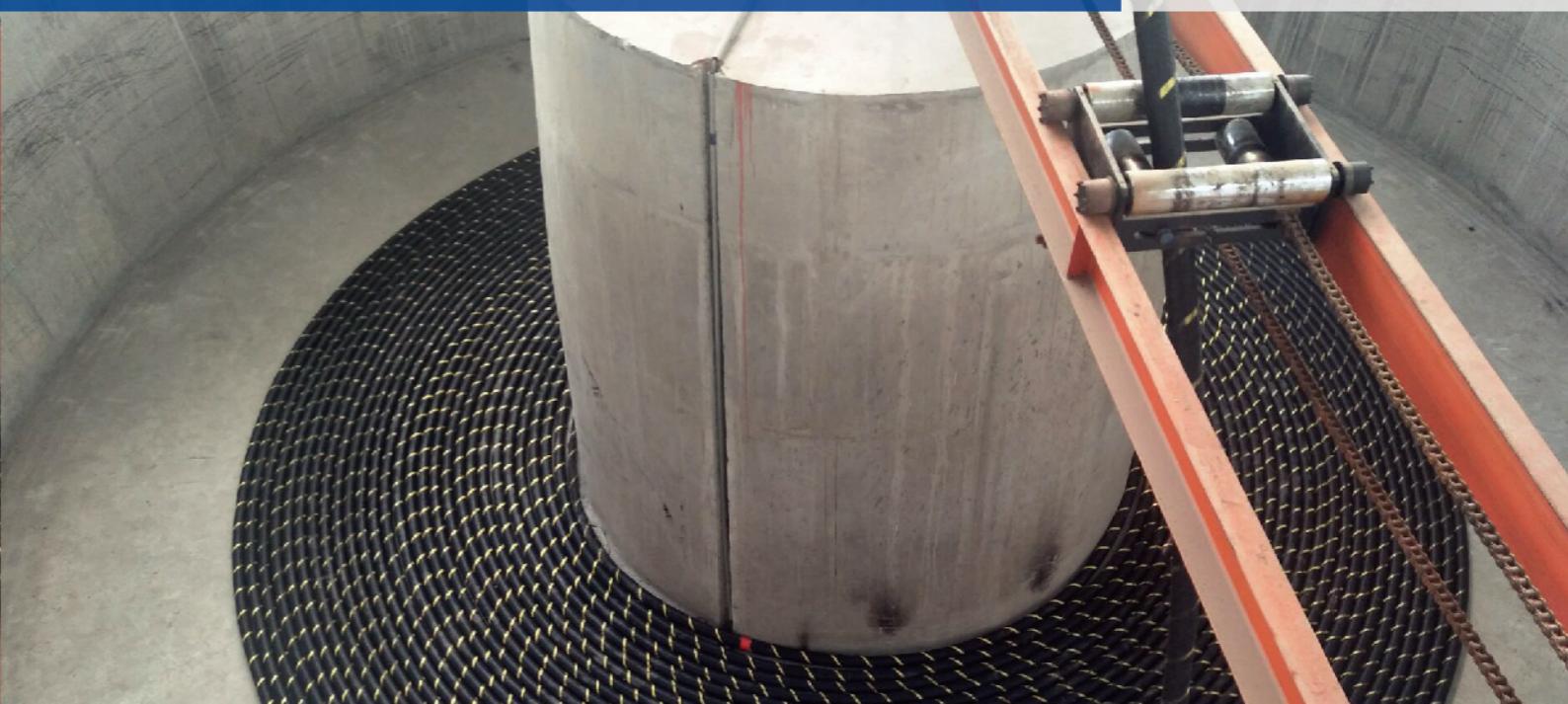
- Application of independent research and development of tray-type vertical laying up and reel-type umbilical cable pay-off multi-function joint armoring manufacturing line, which has been initiatively development in China. Brand new back-twist design cabling device, completely avoiding inner stress because of torsion force
- Equipped with 3 large trays pay-off with diameter 10000 mm, and 12 pay-off devices with diameter 3150 mm, which can guarantee the continuous production of 45 km submarine cable without joints
- Adopting multi-belts traction, which can completely eliminate the bending damage to submarine cable caused by wheel-type traction
- Allocated with wire tension automatic-adjustment device and wire pretwisting
- Total number of metallic wire paying off 150 and can produce three-core cable finished products with diameter 380 mm

设备优势

Equipment Advantage



Equipment Advantage



设备优势

托盘收线系统

Tray take-up system

- 托盘收、放线，可满足单根无接头45千米海缆的交货长度要求
- 直径24米、收线高度2.5米，可最大限度减少海缆接头数量及风险
- 全自动的收排线系统，可稳定的进行大长度海缆收线、储线
- 转盘可承重3000吨

- Application of taking up, paying off tray device, which can fulfill the delivery single length requirements of 45 km submarine cable without joints
- Tray diameter 24meters and traversing height 2.5 meters, which can maximally reduce joint number and risk
- To be applied to taking up an paying off of long length cable, meeting the need of production of submarine cables in large length
- Maximum turntable load-bearing 3000 tons

大容量储缆、输缆装置

Large capacity cable storage and transmission system

- 2套直径16米、收线高度7米大容量储缆系统
- 可用于成品海底电缆的工厂试验和装船前的储缆
- 储缆长度可达到上百公里

- 2 sets of large capacity cable storage system with diameter 16 m and traversing height 7 m
- Can be used for finished submarine cable factory testing and cable storage before shipment
- Cable storage capacity length can reach hundred kilometers

设备优势

Equipment Advantage



设备优势

Equipment Advantage

大容量托盘周转系统

Large capacity tray running system

- 大规格导体收线托盘直径 10米
- 可储存无中间接头导体长度60千米 (800mm^2)
- 满足大长度、大截面海缆导体纵向阻水结构的生产
- 配备导体烘干装置，防止导体氧化、阻水材料吸潮

- Large capacity conductor tray with diameter 10 meters
- Conductor storage capacity length can reach 60 kilometers for cross-section 800 mm²
- Meet the production of large length and great cross section submarine cable conductor with longitudinal block water structure
- Equipped with conductor drying device to protect against conductor oxidation and moisture absorption of water blocking material

大型智能托盘去气系统

Large intelligent pallet with gas getting-off system

- 采用托盘收线直径15米
- 可满足大长度交联海缆去气要求
- 托盘转动采用变频调速，可依据收、放线速度智能调节
- 精确的温度控制系统，确保交联线芯的交联度满足标准要求

- Application of tray take-up with diameter 15 m
- Meet the need of gas getting-off for long-length insulated cable
- Equipped with frequency conversion motor to control the pallet rotation speed, which can intelligently adjust the pay-off speed and take-up speed
- Application of accurate temperature controlling system, which can ensure the best gas getting-off effect of cable core

设备优势

Equipment Advantage



高压局放测试系统

HV PD test system

- 额定电压350kV
- 额定容量12000kVA，能够进行大长度海缆局放、耐压的检测
- 额定电压下的PD水平小于 2pc

➤ Maximum test voltage 350kV
 ➤ The maximum test capacity 12000kVA, by which partial discharge test and withstand voltage test can be carried out for submarine cable with long cable length.
 ➤ Partial discharge level under rated voltage is no more than 2pC



Equipment Advantage

设备优势

变频谐振耐压试验系统

Series resonant voltage withstand test system

- 最大试验电压380 kV
- 试验容量45000kVA
- 试验频率30 ~ 300Hz，可满足大容量海缆在线耐压测试

➤ Maximum test voltage 380kV
 ➤ Test capacity 45000kVA
 ➤ Test frequency range from 30 to 300 Hz, which can satisfy the large capacity of submarine cable online voltage withstand test

产品标准

Products Standards

质量之魂，存于匠心；创新精髓，蕴于智造。

专业“制造”，恪尽职守塑造极致服务；
 专于“质造”，精益求精铸造高端品质；
 专注“智造”，探新求异打造尖端品牌；

万达海缆将以匠人之心，致力于提供海洋供电产品和解决方案，为中国海洋新能源经济发展贡献力量。

The soul of quality resides in the ingenuity, and the essence of innovation is in manufacturing.

Professional manufacturing to fulfill the duty to build acme service.

Specialize in product quality to mould further refinements of high quality.

Focus on intellectual creation, explore new ways to build a cutting-edge brand.

Wanda submarine cable company will be dedicated to providing submarine power supply products and solutions to contribute to economic development of the China's new marine energy.

国际标准

International Standards

GIGRE-21-02 Electra 189 额定电压30kV (Um=36kV) 到150kV (Um=170kV) 海底电缆的测试方法介绍

ELECTRA-171-1997-CIGRE 海底电缆机械性能测试推荐方法

WG-B1-27-TB-490 额定电压30 kV (Um= 36) 到500kV (Um=550kV) 交联聚乙烯绝缘大长度交流海底电缆性能测试推荐方法

GIGRE-21-01 Electra 219 额定电压250kV及以下挤包绝缘直流电力电缆推荐测试方法

IEC 60502 额定电压1kV (Um=1.2kV) 至30kV (Um=36kV) 挤出绝缘电力电缆及其附件

IEC 60840 额定电压30kV (Um=36kV) 至150kV (Um=170kV) 挤出绝缘电力电缆及其附件：试验方法和要求

IEC 62067额定电压150kV (Um=170kV) 至500kV (Um=550kV) 挤出绝缘电力电缆及其附件

ISO 13628-5 石油天然气工业 水下生产系统的设计和操作—第五部分—海底脐带电缆

ITU-T G.978海底光缆特性

ITU-T G.652单模光纤和光缆的特性

ITU-T G.655非零色散位移单模光纤和光缆的特性

ITU-T G.976海底光缆系统试验方法

GIGRE-21-02 Electra 189 Introduction on test method relating to submarine cable 30kV (Um=36kV) up to 150kV (Um=170 kV)

ELECTRA-171-1997-CIGRE Recommendations for mechanical tests of submarine cables

WG-B1-27-TB-490 Recommendations for testing of long AC submarine cables for extruded insulation for system voltage above 30 (36) to 500 (550) kV

GIGRE-21-01 Electra 219 Recommendations for testing DC extruded cable systems for power transmission at a rated voltage up to 250kV

IEC 60502 Power cables with extruded insulation and their accessories for rated voltages from 1 kV (Um = 1.2 kV) up to 30 kV (Um = 36 kV)

IEC 60840 Power cables with extruded insulation and their accessories for rated voltages from 30 kV (Um = 36 kV) up to 150 kV (Um = 170 kV)

IEC 62067 Power cables with extruded insulation and their accessories for rated voltages from 150 kV (Um = 170 kV) up to 500 kV (Um = 550 kV)

ISO 13628-5 Petroleum and natural gas industries -- Design and operation of subsea production systems -- Part 5: Subsea umbilical

ITU-T G.978 Characteristics of optical fiber submarine cables

ITU-T G.652 Characteristics of single mode optical fiber and optical fiber cable

ITU-T G.655 Characteristics of a non-zero dispersion-shifted single-mode optical fibre and cable

ITU-T G.976 Test methods applicable to optical fiber submarine cable systems



Products Standards

产品标准

国家标准

National Standards

GB/T 32346-2015 额定电压220kV (Um=252 kV) 交联聚乙烯绝缘大长度交流海底电缆及附件

TICW7-2012 额定电压500kV及以下直流输电用挤包绝缘电力电缆系统技术规范

JB/T 11167-2011 额定电压10 kV (Um=12 kV) 至110 kV (Um=126 kV) 交联聚乙烯绝缘大长度交流海底电缆及附件

GB/T 12706-2008 额定电压1kV (Um=1.2kV) 到35kV (Um=40.5kV) 挤包绝缘电力电缆及附件

GB/T 11017-2002 额定电压110kV交联聚乙烯绝缘电力电缆及其附件

GB/Z 18890-2002 额定电压220 kV (Um=252 kV) 交联聚乙烯绝缘电力电缆及其附件

GB/T 21412.5-2010 石油天然气工业 水下生产系统的设计和操作 第5部分:水下脐带缆

JB/T 10181-2000 电缆载流量计算

GB/T 9771-2008 通信用单模光纤

GB/T 12357.1-2004 通信用多模光纤 第1部分:A1类多模光纤特性

GB/T 15972.2-1998 光纤总规范 第2部分:尺寸参数试验方法

GB/T 15972.4-1998 光纤总规范 第4部分:传输特性和光学特性试验方法

Q/WDHL001-2009 额定电压35kV (Um=40.5kV) 及以下交联聚乙烯绝缘大长度海底电缆及附件

GB/T 32346-2015 Long AC submarine cable with cross-linked polyethylene insulation and their accessories for rated voltage of 220 kV (Um=252 kV)

TICW7-2012 Test Specification of DC Extruded Cable System for Power Transmission at a Rated Voltage up to 500kV

JB/T 11167-2011 Long AC submarine cables with cross-linked polyethylene insulation and their accessories for rated voltage from 10 kV (Um=12 kV) up to 110 kV (Um=126 kV)

GB/T 12706-2008 power cables with extruded insulation and their accessories for rated voltages from 1kV (Um=1.2kV) up to 35kV (Um=40.5kV)

GB/T 11017-2002 power cables with cross-linked polyethylene insulation and their accessories for rated voltage of 110 kV

GB/Z 18890-2002 power cables with cross-linked polyethylene insulation and their accessories for rated voltage of 220 kV (Um=252 kV)

GB/T 21412.5-2010 Petroleum and natural gas industries - Design and operation of subsea production systems - Part 5: Subsea umbilicals

JB/T 10181-2000 Calculation of the current rating of electric cables

GB/T 9771-2008 Single-mode optical fibers for telecommunication

GB/T 12357.1-2004 Multimode optical fibers for telecommunication--Part 1: Sectional specification for category A1 multimode fibers

GB/T 15972.2-1998 Generic specification for optical fibers—Part 2: Measuring methods for dimensions

GB/T 15972.4-1998 Generic specification for optical fibers—Part 4: Measuring methods for transmission and optical characteristics

Q/WDHL001-2009 AC submarine cables with cross-linked polyethylene insulation and their accessories for rated voltage up to 35kV (Um=40.5kV)

交流光纤复合海底电缆

AC Optical Fiber Composite Submarine Cable

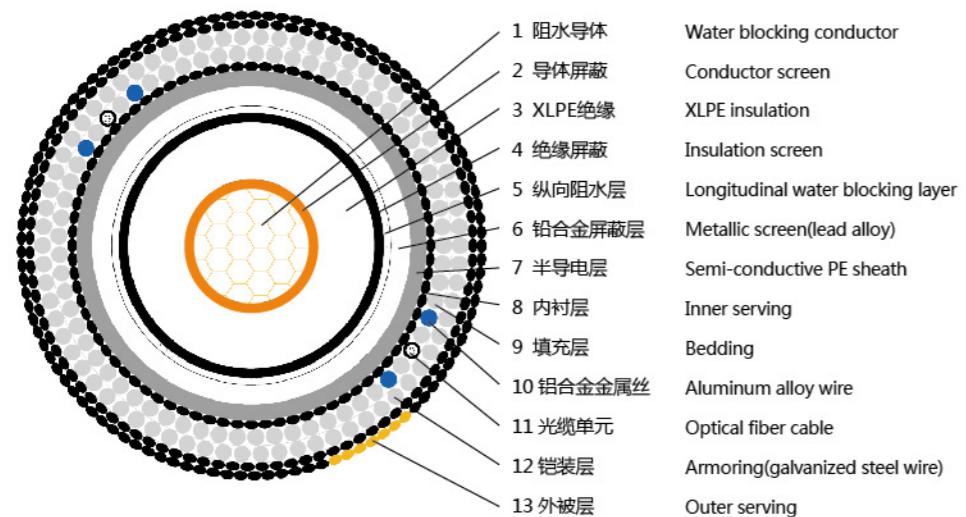
AC Optical Fiber Composite Submarine Cable

交流光纤复合海底电缆

交联聚乙烯绝缘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

**适用范围:**

适用于工频49~61赫兹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、大陆与平台及海上钻井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。

使用特性

- 1) 海缆导体允许的最高工作温度为90℃；
- 2) 短路时（最长持续时间不超过5s）海缆导体的最高工作温度不超过250℃；
- 3) 海缆敷设时环境温度应不低于0℃；
- 4) 海缆敷设最小弯曲半径不小于20倍海缆实际外径；
- 5) 海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。

Scope of application:

Applies to solidly earthed system with power frequency of 49~61Hz. Mainly used for high-power electric power transmission between mainland and island, island and island, mainland and platform and between the offshore drilling platform, as well as control signals transmission of smart grid and communication signal transmission.

Operational performance:

- 1) Maximum allowable operating temperature of cable conductor is 90 °C.
- 2) The operating temperature of cable conductor shall not exceed 250 °C under short circuit condition (Maximum duration does not exceed 5s).
- 3) Ambient temperature shall not be lower than 0 °C while laying cable.
- 4) The minimum bending radius of cable shall not be smaller than 20 times of actual external diameter of cable.
- 5) Cable shall meet smart grid control, transmit communication signal and realize safety early-warning and temperature measure control.

单芯 127/220kV 光纤复合海底电缆主要技术参数 (镀锌钢丝铠装) THE MAIN TECHNICAL PARAMETERS

规格 Cross Section(mm ²)	设计功率 (考虑功率因素 0.85) Design Power (the power factor is 0.85) (MVA)	载流量 Current Capacity (A)			电阻 Resistance (Ω/km)		电容 Capacitance (μF/km)	电感 Inductance (mH/km)	电缆外径 Cable Diameter (mm)	最小弯曲半径 Min. Bending Radius (mm)	电缆重量 Cable Weight (kg/km)	
		海床中 In seabed	滩涂中 In intertidal	陆地 Under ground	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
1×400	144.8	684	583	447	0.047	0.061	0.117	0.682	136.4	2728	38334	23722
1×500	154.5	741	626	477	0.0366	0.0486	0.124	0.663	139.6	2792	40853	25547
1×630	162.6	792	663	502	0.0283	0.0387	0.136	0.643	140.9	2818	42266	26674
1×800	170.4	841	698	526	0.0221	0.0315	0.151	0.623	143.0	2860	44788	28727
1×1000	173.6	874	716	536	0.0176	0.0233	0.166	0.604	146.1	2922	47776	31012
1×1200	181.1	917	749	559	0.0151	0.020	0.179	0.591	150.4	3008	51841	34075
1×1400	186.2	949	772	575	0.0129	0.0174	0.188	0.579	154.0	3080	55022	36395
1×1600	191.7	982	796	592	0.0113	0.0154	0.197	0.571	157.6	3152	58418	38910
1×1800	196.9	1011	818	608	0.0101	0.0140	0.205	0.563	160.8	3216	61879	41571
1×2000	201.8	1047	840	623	0.009	0.0127	0.213	0.556	164.1	3282	65448	44298
1×2200	206.0	1066	859	636	0.0082	0.0119	0.220	0.550	167.2	3344	68719	46763
1×2500	212.2	1101	885	655	0.0072	0.0107	0.230	0.542	171.4	3428	73474	50401

注：标准中导体截面范围为400~2500mm²。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 in standard. The design conditions of current carrying capacity: 1、seabed temperature 25 °C, the thermal resistance 0.7;
2、intertidal soil temperature 25 °C, the thermal resistance 1.0; 3、land soil temperature 40 °C, the thermal resistance 1.2.

单芯 64/110kV 光纤复合海底电缆主要技术参数 (镀锌钢丝铠装) THE MAIN TECHNICAL PARAMETERS

规格 Cross Section(mm ²)	设计功率 (考虑功率因素 0.85) Design Power (the power factor is 0.85) (MVA)	载流量 Current Capacity (A)			电阻 Resistance (Ω/km)		电容 Capacitance (μF/km)	电感 Inductance (mH/km)	电缆外径 Cable Diameter (mm)	最小弯曲半径 Min. Bending Radius (mm)	电缆重量 Cable Weight (kg/km)	
		海床中 In seabed	滩涂中 In intertidal	陆地 Under ground	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
1×240	59.4	553	475	367	0.0754	0.098	0.125	0.667	111.8	2236	25669	15852
1×300	63.2	597	508	390	0.0601	0.078	0.135	0.645	113.0	2260	26413	16384
1×400	66.9	643	542	413	0.047	0.061	0.153	0.616	114.2	2284	27740	17497
1×500	70.8	688	575	437	0.0366	0.0486	0.169	0.594	116.4	2328	29507	18866
1×630	74.2	730	605	458	0.0283	0.0387	0.186	0.570	118.7	2374	31339	20273
1×800	77.6	771	636	479	0.0221	0.0315	0.207	0.547	121.8	2436	34153	22501
1×1000	83.1	835	684	513	0.0176	0.0233	0.223	0.520	127.1	2542	37802	25114
1×1200	86.2	872	711	532	0.0151	0.020	0.242	0.501	131.2	2624	41218	27699
1×1400	89.1	907	737	550	0.0129	0.0174	0.256	0.486	135.0	2700	44535	30221
1×1600	91.8	938	761	567	0.0113	0.0154	0.269	0.474	138.6	2772	47925	32838

注：标准中导体截面范围为240~1600mm²。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 in standard. The design conditions of current carrying capacity: 1、seabed temperature 25 °C, the thermal resistance 0.7;
2、intertidal soil temperature 25 °C, the thermal resistance 1.0; 3、land soil temperature 40 °C, the thermal resistance 1.2."

交流光纤复合海底电缆

AC Optical Fiber Composite Submarine Cable

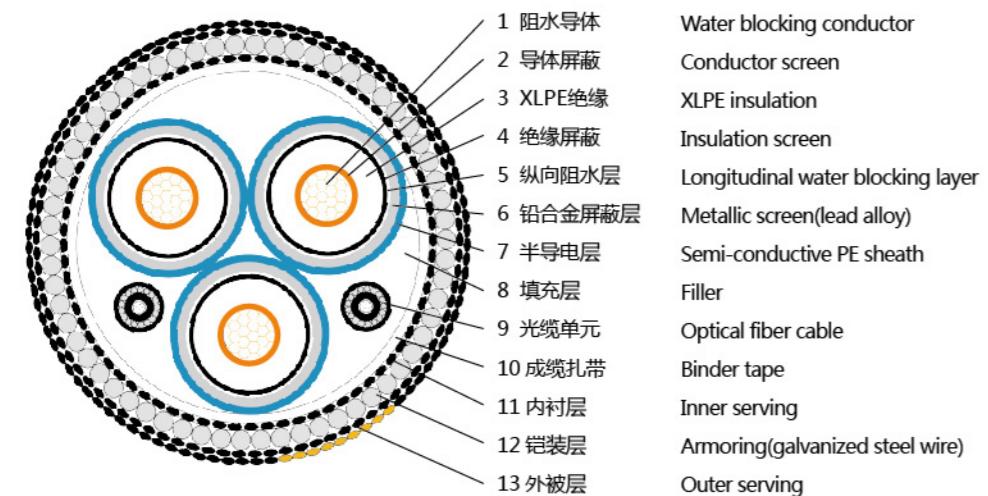
AC Optical Fiber Composite Submarine Cable

交流光纤复合海底电缆

交联聚乙烯绝缘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

**适用范围:**

适用于工频49~61赫兹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、大陆与平台及海上钻井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。

产品表示方法

示例：额定电压127/220kV 三芯、铜导体、标称截面积630 mm²、交联聚乙烯绝缘、分相铅套、粗圆钢丝铠装、聚丙烯纤维被层12芯B1型光纤复合海底电缆，表示为：HYJQF41-F 127/220kV 3×630+2×12B1

字母代表含义：H:海底电缆；YJ: 交联聚乙烯绝缘；Q: 铅套；F: 分相 4: 粗圆钢丝铠装；1: 纤维外被层；-F: 光纤复合海底电缆

Scope of application:

Applies to solidly earthed system with power frequency of 49~61Hz. Mainly used for high-power electric power transmission between mainland and island, island and island, mainland and platform and between the offshore drilling platform, as well as control signals transmission of smart grid and communication signal transmission.

Product presentation method**For Example:**

The rated voltage of 127/220kV, 3-core, copper conductor, nominal cross section 630 mm², cross-linked polyethylene insulation, individual phase lead sheath, round steel wire armor and polypropylene fiber outer serving submarine cable with 12B1 type optical fiber cables, expressed as HYJQF41-F 127/220kV 3×630+2×12B1

Alphanumeric characters:

H:Submarine cable; YJ: Cross-linked polyethylene insulation; Q: Metallic lead sheath; F: individual phase lead sheath; 4: Round steel wire armor; 1: Polypropylene fiber outer serving; -F: Optical fiber composite submarine cable

使用特性

- 1) 海缆导体允许的最高工作温度为90℃；
- 2) 短路时（最长持续时间不超过5s）海缆导体的最高工作温度不超过250℃；
- 3) 海缆敷设时环境温度应不低于0℃；
- 4) 海缆敷设最小弯曲半径不小于15倍海缆实际外径；
- 5) 工厂接头具有同电缆本体相同的电气性能和机械性能；
- 6) 海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。

Operational performance:

- 1) Maximum allowable operating temperature of cable conductor is 90 °C.
- 2) The operating temperature of cable conductor shall not exceed 250 °C under short circuit condition (Maximum duration does not exceed 5s).
- 3) Ambient temperature shall not be lower than 0 °C while laying cable.
- 4) The minimum bending radius of cable shall not be smaller than 20 times of actual external diameter of cable.
- 5) Factory joint shall have the same electric and mechanical performance of main body of cable.
- 6) Cable shall meet smart gird control, transmit communication signal and realize safety early-warning and temperature measure control.

产品技术特点

- 1) 导体纵向阻水技术，可有效减少海缆纵向透水长度，延长海缆使用寿命；
- 2) 大长度海缆内外屏蔽及绝缘无缺陷挤制技术；
- 3) 大长度海缆连续无缺陷径向综合防腐防水层制造技术；
- 4) 大长度海缆连续无缺陷防水半导电层挤制技术；
- 5) 防腐、防蚀设计，特别是金属套、绝缘；
- 6) 大长度海缆多根数、多层次、多复合结构成缆和铠装；
- 7) 工厂接头具有同海缆本体相同的电气性能和机械性能。

Product technical feature:

- 1) Conductor longitudinal water resistance technology which can effectively reduce the length of cable longitudinal water permeability and extend the service life of cables.
- 2) No defect extrusion technology for large - length submarine cables.
- 3) The manufacturing technology of continuous non-defective radial integrated anti-corrosive waterproof layer for the long length.
- 4) The semi-conductive layer extruding technique of continuous without defect for long length of submarine cable.
- 5) Anti-corrosion design, especially metallic sheath and insulation.
- 6) Multi-layer and multi-composite structure of long length submarine cable laying up and armor process.
- 7) The factory joint has the same electrical and mechanical properties of cable main body.

直流光纤复合海底电缆

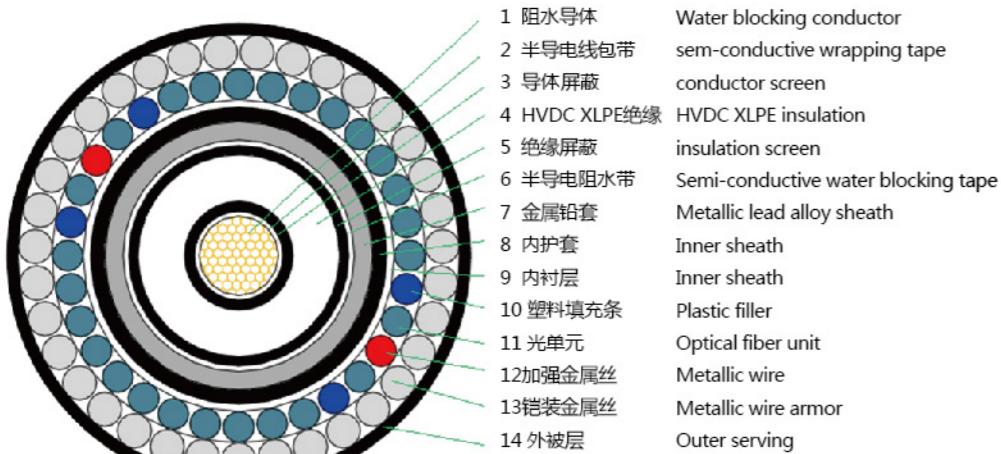
DC Optical Fiber Composite Submarine cable

DC Optical Fiber Composite Submarine cable

直流光纤复合海底电缆

产品结构图

Product structure diagram



直流光纤复合海底电缆主要技术参数 THE MAIN TECHNICAL PARAMETERS

截面 Cross section	$\pm 80kV$							$\pm 160kV$						
	载流量 Current Capacity (A)		设计功率 Design Power (MVA)		电缆重量 Cable Weight (kg/m)		电缆外径 Cable Diameter (mm)	载流量 Current Capacity (A)		设计功率 Design Power (MVA)		电缆重量 Cable Weight (kg/km)		电缆外径 Cable Diameter (mm)
	铜导体 conductor (mm ²)	海床 In seabed	滩涂 In intertidal	并排敷设 Abreast installation	定距敷设 parallel installation	空气中 in air		海床 In seabed	滩涂 In intertidal	并排敷设 Abreast installation	定距敷设 parallel installation	空气中 in air	海水中 in sea	
300	530	605	265	302	19.6	10.1	92.6	697	546	181	191	26.3	17.1	108.3
400	615	700	307	350	21.5	11.6	96.1	817	631	209	221	26.9	17.8	107.5
500	710	810	355	405	23.8	14.5	101.1	945	724	241	255	28.8	19.2	110.5
630	820	945	410	472	26.1	15.3	105.0	1100	835	279	294	31.4	21.2	114.2
800	950	1095	475	547	29.0	19.9	109.0	1279	960	321	339	33.5	22.9	116.1
1000	1080	1255	540	627	32.7	23.1	115.0	1472	1093	367	387	37.1	25.5	121.4
1200	1190	1375	595	687	38.2	27.4	121.1	1618	1193	401	423	40.9	28.5	125.9
1600	1405	1640	702	820	40.4	29.9	128.0	1923	1402	474	498	47.3	33.4	132.9

注：标准中 $\pm 80kV$ 电压等级的导体截面范围为95—1600mm²。 $\pm 160kV$ 电压等级的导体截面范围为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28℃，热阻1.0

Note: Cross section of conductor for $\pm 80kV$ is in range of 95—1600mm² in standard. Cross section of conductor for $\pm 160kV$ is in range of 240—1600mm² in standard. The design conditions of current carrying capacity: 1、seabed temperature 25 ℃, the thermal resistance 0.7; 2、intertidal soil temperature 28 ℃, the thermal resistance 1.0;

适用范围：

电力传输、多个交流电网互联和控制、不同电网并入，如海岛电网、海上平台、风力发电等、连接分散的小型发电厂、大距离供电、海上供电。

Scope of application:

It mainly used in power transmission AC power network interconnection and control, different networks, such as island power grid, offshore platforms, winds power grid, connecting power plants, long distance power supply and marine power supply.

使用特性

- 1) 直流击穿场强较交流击穿场强高，相同的输送功率，电缆结构更紧凑；
- 2) 直流电缆无交变电磁场引起金属损耗，故输送效率高、线路损耗小、传输容量大，有利于长距离输电；
- 3) 易于调节电流和改变功率传输方向，稳定性高；
- 4) 与交流系统相比具有更长的寿命；
- 5) 提高配电网的电能质量。

Operational performance:

- 1) Breakdown voltage of cable for DC transmission is higher than cable for AC transmission, and for the same transmission power, cable structure for DC transmission is more compact.
- 2) No metal loss caused by alternating electromagnetic field, high transmission efficiency ,low line loss, large transmission capacity, long distance transmission.
- 3) Easy to adjust the current and change the direction of power transmission, high stability.
- 4) Longer life expectancy than AC system.
- 5) Improve the quality of power distribution network.

直流光纤复合海底电缆主要技术参数 THE MAIN TECHNICAL PARAMETERS

截面 Cross section	$\pm 200kV$							$\pm 320kV$						
	载流量 Current Capacity (A)		设计功率 Design Power (MVA)		电缆重量 Cable Weight (kg/m)		电缆外径 Cable Diameter (mm)	载流量 Current Capacity (A)		设计功率 Design Power (MVA)		电缆重量 Cable Weight (kg/km)		电缆外径 Cable Diameter (mm)
	铜导体 conductor (mm ²)	海床 In seabed	滩涂 In intertidal	并排敷设 Abreast installation	定距敷设 parallel installation	空气中 in air		海床 In seabed	滩涂 In intertidal	并排敷设 Abreast installation	定距敷设 parallel installation	空气中 in air	海水中 in sea	
400	809	627	261	275	28.3	18.5	111.7	-	-	-	-	-	-	-
500	936	720	300	316	30.1	19.8	114.7	-	-	-	-	-	-	-
630	1088	830	347	365	32.7	21.7	118.4	-	-	-	-	-	-	-
800	1265	955	399	421	35.1	23.7	120.5	1205	930	631	656	48.8	31.5	148.5
1000	1456	1087	457	481	39.6	27.0	126.6	1387	1060	721	749	52.9	34.3	153.8
1200	1600	1187	500	526	43.1	29.6	130.9	1535	1161	791	823	54.8	36.2	153.9
1400	1759	1296	547	575	46.1	31.9	134.3	1688	1269	866	900	58.4	38.9	157.5
1600	1902	1394	590	620	49.7	34.8	137.9	1824	1365	933	969	61.5	41.2	160.7

注：标准中 $\pm 200kV$ 电压等级的导体截面范围为400—1600mm²。 $\pm 320kV$ 电压等级的导体截面范围为800—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28℃，热阻1.0

Note: Cross section of conductor for $\pm 200kV$ is in range of 400—1600mm² in standard. Cross section of conductor for $\pm 320kV$ is in range of 800—1600mm² in standard. The design conditions of current carrying capacity: 1、seabed temperature 25 ℃, the thermal resistance 0.7; 2、intertidal soil temperature 28 ℃, the thermal resistance 1.0;

交流海底电缆

AC Submarine power cable

AC Submarine power cable

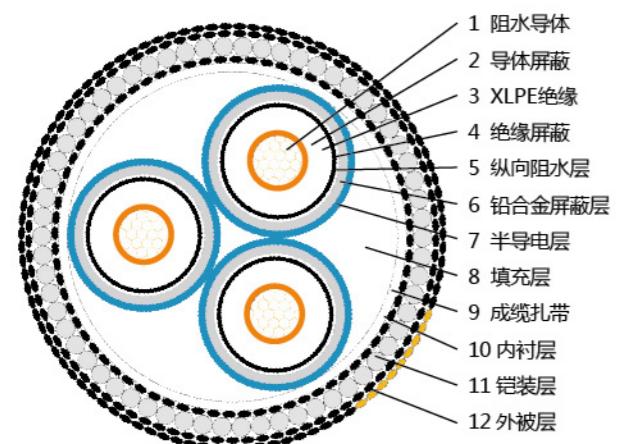
交流海底电缆

交联聚乙烯绝缘三芯海底电缆

3-core submarine cable with cross-linked polyethylene insulation

产品结构图

Product structure diagram



1 阻水导体
2 导体屏蔽
3 XLPE 绝缘
4 绝缘屏蔽
5 纵向阻水层
6 铅合金屏蔽层
7 半导电层
8 填充层
9 成缆扎带
10 内衬层
11 铠装层
12 外被层



适用范围:

适用于工频49~61赫兹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、大陆与平台及海上钻井平台之间的大功率电力输送。

产品表示方法

示例: 额定电压127/220kV 三芯、铜导体、标称截面积630 mm²、交联聚乙烯绝缘、分相铅套、粗圆钢丝铠装、聚丙烯纤维被层海底电缆，表示为：HYJQF41 127/220kV 3×630

字母代表含义: H:海底电缆；YJ: 交联聚乙烯绝缘；Q: 铅套；F: 分相 4: 粗圆钢丝铠装；1: 纤维外被层

Scope of application:

Applies to solidly earthed system with power frequency of 49~61Hz. Mainly used for high-power electric power transmission between mainland and island, island and island, mainland and platform and between the offshore drilling platform.

Product presentation method

For Example:

The rated voltage of 127/220kV, 3-core, copper conductor, nominal cross section 630 mm², cross-linked polyethylene insulation, individual phase lead sheath, round steel wire armor and polypropylene fiber outer serving submarine cable expressed as HYJQF41 127/220kV 3×630

Alphanumeric characters:

H :Submarine cable; YJ: Cross-linked polyethylene insulation; Q: Metallic lead sheath; F: individual phase lead sheath; 4: Round steel wire armor; 1: Polypropylene fiber outer serving

使用特性

- 1) 海缆导体允许的最高工作温度为90℃；
- 2) 短路时（最长持续时间不超过5s）海缆导体的最高工作温度不超过250℃；
- 3) 海缆敷设时环境温度应不低于0℃；
- 4) 海缆敷设最小弯曲半径不小于15倍海缆实际外径；
- 5) 工厂接头具有同电缆本体相同的电气性能和机械性能。

Operational performance:

- 1) Maximum allowable operating temperature of cable conductor is 90 °C.
- 2) The operating temperature of cable conductor shall not exceed 250 °C under short circuit condition (Maximum duration does not exceed 5s).
- 3) Ambient temperature shall not be lower than 0 °C while laying cable.
- 4) The minimum bending radius of cable shall not be smaller than 20 times of actual external diameter of cable.
- 5) Factory joint shall have the same electric and mechanical performance of main body of cable.

Product technical feature:

- 1) Conductor longitudinal water resistance technology which can effectively reduce the length of cable longitudinal water permeability and extend the service life of cables.
- 2) No defect extrusion technology for large - length submarine cables.
- 3) The manufacturing technology of continuous non-defective radial integrated anti-corrosive waterproof layer for the long length.
- 4) The semi-conductive layer extruding technique of continuous without defect for long length of submarine cable.
- 5) Anti-corrosion design, especially metallic sheath and insulation.
- 6) Multi-layer and multi-composite structure of long length submarine cable laying up and armor process.
- 7) The factory joint has the same electrical and mechanical properties of cable main body.

脐带电缆

Umbilical Cable



脐带缆被广泛应用于海洋油气田以及海洋矿藏资源的开发、海洋勘探、水下机器人（ROV）和各种海工设备之间的电力信号连接。脐带缆主要有液压管线，电力单元和光纤单元组成。它的设计要在兼顾电、通信、液压等功能的同时满足各种复杂海况的动态响应要求。

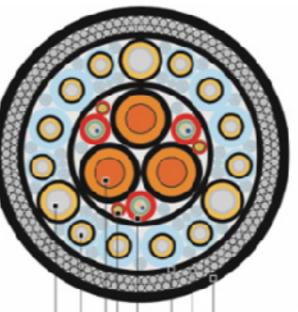
产品特性:

- 1) 为水下生产系统阀门执行器提供液压动力源；
- 2) 为水下控制系统提供电力电源；
- 3) 为水下生产系统提供控制信号及传输水下生产系统操作运行状态数据；
- 4) 为水下油井等提供化学药剂注入通道。

Product feature:

- 1) Provide hydraulic power source for subsea production system valve actuators.
- 2) Provide electric power for underwater control system.
- 3) Provide the control signal for subsea production system and transmission operation data of subsea production system.
- 4) Provide chemical injection channel for underwater well etc.

12+3+3CE(动力)+3CE(信号)+3FO(光纤)
12+3+3CE(POWER)+3CE(SIGNAL)+3FO(OPTICAL FIBER)



聚乙烯	Polyethylene
钢丝	Steel wire
聚乙烯	Polyethylene
信号电缆	Electrical cable
光纤	Optica fiber
电力电缆	Power cable
液压软管	Hydraulic house
化学注射软管	Injection house



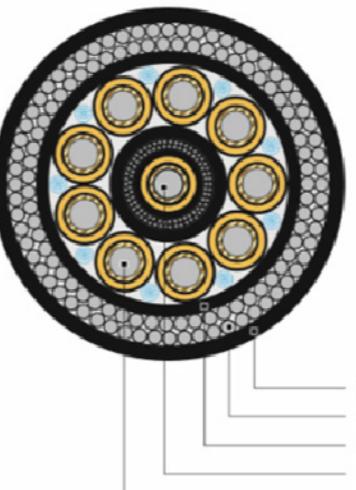
产品参数/ Technical data:

适用水深/Water depth: 2500m
 成品外径/O.D.: 196mm
 弯曲半径/Bending radius: 1564mm
 测试压力/Test pressure: 77.5MPa

空气中缆的重量/Weight in the air: 67.7kg/m
 水中缆的重量/Weight in the water: 39.86kg/m
 拉断力/Breaking load: 6658kN

10HCR 液压立管缆线

10HCR HYDRAULIC RISER UMBILICAL



聚乙烯	Polyethylene
钢丝	Steel wire
聚乙烯	Polyethylene
化学注射软管	Injection hose
化学注射软管	Injection hose



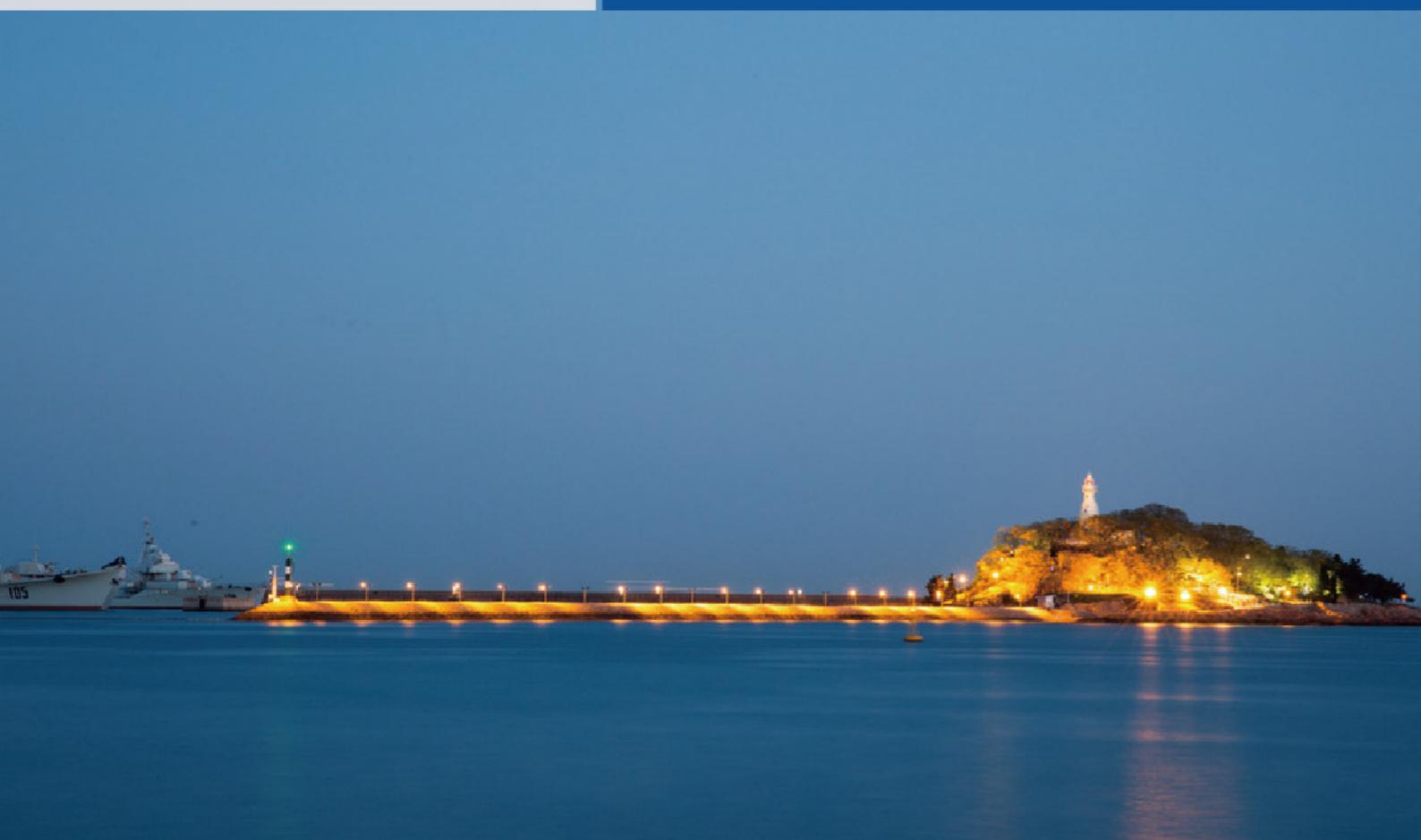
产品参数/ Technical data:

适用水深/Water depth: 2000m
 成品外径/O.D.: 147.4mm
 弯曲半径/Bending radius: 910mm
 测试压力/Test pressure: 51.7MPa

空气中缆的重量/Weight in the air: 43.98kg/m
 水中缆的重量/Weight in the water: 26.54kg/m
 拉断力/Breaking load: 2928.2kN

岛屿海洋能开发电力系统应用

The Island Ocean Energy Develop Power System Application



2017年山东万达海缆有限公司为三融集团承建的威海褚岛海洋能独立电力系统示范工程提供最佳解决方案，包括海缆设计制造，施工总包一篮子工程的服务，得到客户的认可与好评。

In 2017, Shandong Wanda submarine cable co., LTD has provided the best solution for Chu island ocean energy independent power system demonstration project located in Weihai of Sanrong Group, which is including the submarine cable design and manufacturing, the construction contractor of a basket of engineering services. We have received excellent feedback and comment from our customers.

The Wave Energy Independent Power System Solution



随着海洋新资源的开发利用，海洋能发电技术以其独特优势和战略地位吸引了人们的注意，海洋波浪蕴藏着巨大的能量。中国科学院广州能源研究所在国家海洋可再生能源专项和中国科学院A类战略先导科技专项支持下，在广东珠海万山岛研建一座大型漂浮式波浪能发电装置。2016年山东万达海缆有限公司为本工程提供一条直流海缆及防弯器、锚固装置等配件，使得平台在海上输出DC24V、AC220V、AC380V的标准电力通过海底电缆送电上岸。

With the development and utilization of ocean new resources, the ocean energy generation technology attracts people's attention with its unique advantages and strategic position, and the ocean waves contain huge energy.

Guangzhou energy research institute have studied a large floating wave energy power generation device in Guangdong, Zhuhai, Wanshan Island, which is under the special support of the Chinese academy of sciences class a strategic leading science -item and national marine renewable energy projects.

In 2016, Shandong Wanda submarine cable co., LTD had provided a DC voltage cable and accessories for this project to makes DC24V, AC220V, AC380V standard power outputted by platform on the sea transmit to shore.

海上钻井石油平台供电解决方案
Offshore Oil Drilling Platform Power Solutions
Islands Power Transmission Solution
岛屿电力传输解决方案


石油和天然气行业的近海生产平台将原油抽出
钻井需要消耗大量的电能，电能用于一系列的活动，
包括驱动油泵抽取原油，二次注水提高采油率等。
钻井平台按挪动方法分可分为两种，自升式和半潜
式平台，前者约需150公里海底电缆，后者约需
180公里。海上石油钻井平台将大大增进海底电缆
的需要量。

2015年万达海缆公司为中海油设计、制造和
提供的1根10kV光纤复合海底电缆用于海上石油平
台使用，可为石油平台提供10MVA的输送容量。

Extracting oil from the offshore production drilling platform of oil and gas industry needs large amounts of electric energy, which is used for a series of activities, including driving oil pump for extracting crude oil, secondary water flooding to improve oil recovery rate, etc. According to the method of moving points, drilling platform can be divided into two kinds, jack-up and semi-submersible platform, about 150 km submarine cable to be needs for the former and about 180 kilometers for the latter. Thus offshore oil drilling platform will greatly enhance the submarine cable requirement.

In 2012, Wanda submarine cable company designed & manufactured optical fiber composite submarine cables for rated voltage 10kV used for offshore oil platform for CNNOC, which can provide 10 MVA transmission capacity for oil platform.



由独立电网供电的海岛有时连接至大陆或邻近
岛屿，以增强供电的可用性。2015年3月万达海缆
公司为广东电信局对靠近大陆的海岛提供解决方案。

主要产品：4.5kM海底电缆35kV HYJQ41
 $3 \times 50\text{mm}^2$ 海缆的附件终端、海缆敷设指导及现
场安装服务等。

此工程的完成标志着公司从单一的海底电缆制
造到提供海底电力电缆系统解决方案的转变。

Islands with an autonomous power supply are sometimes connected to the mainland or neighbour islands in order to increase the power availability.

In March 2011, Wanda submarine cable company provides submarine cable solutions of island near the mainland for Guangdong telecommunication bureau.

Main product is 4.5kM 3-core 50mm² submarine cables with XLPE insulated for rated voltage of 35kV, accessories and terminals, submarine cable installation guide and on-site installation services.

合作客户

Cooperative Customers

Accessories

附件产品



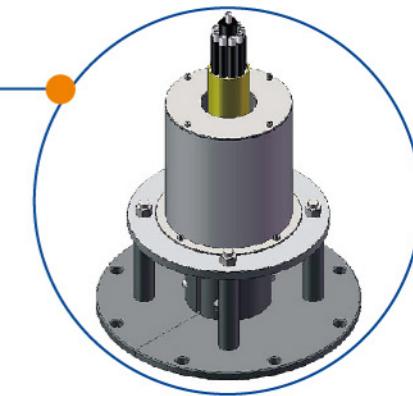
石油平台锚固装置 Hang off device for Oil platform

使用范围:

本产品适用于海洋石油平台、钻井等平台上海底电缆的悬挂和固定。

产品使用特性:

- 可根据不同型号的海底电缆进行设计制作;
- 施工操作简单, 可节省安装时间;
- 特殊材质制作, 允许长期在海洋环境中使用, 使用寿命长;
- 装置材料为非磁性材料, 可减小海缆的损耗。



Application scope:

The product is used for submarine cable suspension and fixation on drilling platform and petroleum platform.

Product feature:

- Special design and production according to different submarine cable type.
- Simple operation, saving installation time.
- Special material production, allowing the use in the Marine environment for a long time, long service life.
- Application of nonmagnetic materials, which can reduce submarine cable loss.



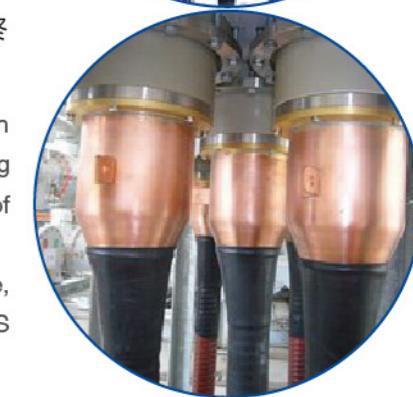
电缆终端 Cable terminations

海底电缆登陆上岸时通常与靠近海滩的地下电缆相连接。根据不同电压等级不同海底电缆规格, 有相应的电缆终端进行匹配。适合于海底电缆使用的特殊场合, 有良好的防盐蚀、防潮、防污秽等特点。

根据不同场合的需要, 电缆终端有中低压冷缩式终端、复合套管式终端、干式终端、瓷套式终端、GIS 终端等可以选用。

The submarine cable, when landed onshore, is normally connected (jointed) to an underground cable close to the beach. There are corresponding cable terminals according to the different voltage grade and cable type. The cable terminations have the properties of corrosion prevention& moisture proof and prevent dirty for special occasions etc.

According to different occasions needs, there are cold types terminal for low voltage, composite bushing terminals, dry terminal, porcelain sleeve type terminal and the GIS terminal etc to be chosen.



牵引装置 Pulling steel mesh

具有很好的柔軟性能，可依据海缆敷设时的轨迹变化灵活改变牵引方向；对海缆的敷设提供足够的牵引拉力，确保敷设时安全拉拽；可根据不同规格的海缆要求，特殊定制不同长度、提供不同的抗拉强度。

Softening performance, which can flexibly change the direction of traction on the basis of laying track changes of submarine cable.

Provide enough traction force when laying of submarine cable, to ensure safety installation pull tension.

According to different specifications of the submarine cable requirements, we can specially provide steel mesh in different length and different tensile strength.



连接装置 – 抢修接头 Connect device-Repair joint

为海底电缆在经受锚害损坏后，可以快速进行光信号与电力传输的抢修。具有操作简单，安全性能优异，具有高的可靠性等

By using repair joint, we can quickly repair optical signal and power transmission for submarine cable after being damaged by anchor

With simple operation, excellent safety performance, high reliability, etc

电缆终端接地箱 Grounding terminal box

接地箱为放接地线的，起保护接地线的作用。

采用高强度的不锈钢保护外壳，可对电缆进行有效的防护。

Putting the earth cable in the grounding box for protection.

Application of high strength stainless steel protective shell for effective protection.

海缆的储存、运输 Submarine cable storage and transportation

海缆成品收线在托盘内，可放置在工厂码头，用于海底电缆出厂后的快速吊装及运输。同时也可固定于敷设船的甲板内，以满足不同规格的大长度海缆储缆、运输需求。

Submarine cables are packed in the tray, which can be placed in the factory dock and used for fast lifting and transportation of submarine cables after delivered.

At the same time the tray also can be fixed in laying ship deck, to meet the different specifications of the large length submarine cable transportation demands.

海底电缆不是一种简单的电缆产品，它是包括设计、制造、运输、安装与敷设、海上抢修等技术内容的综合性产品，售后服务是其中的一个重要环节。一旦海缆因船只抛锚而损坏，我们可以迅速的组织相应的专业技术抢修人员为用户提供服务和指导。

Submarine cable is not a kind of simple cable products, and it is an integrative product including design, manufacturing, transportation, installation and cable laying, repair on sea etc. The after-sales service is one of the important link. Once the submarine cable is damaged by the anchoring of the ship, we can quickly organize the corresponding professional technical emergency workers to provide services and guidance to the users.



山东万达海缆有限公司拥有一支经验丰富的售后工程服务团队，为多个海缆项目提供敷设、安装及修复等优质服务，得到客户广泛好评。

Shandong Wanda submarine cable co., LTD has an experienced after-sale engineering service team. The team has completed many projects including installation, repair and supervision service. We have received excellent comment from customer.

全国服务机构

