ZTT 中天科技

SUBMARINE CABLE

Focuses on Precision Manufacturing









ZTT GROUP

Jiangsu Zhongtian Technology Co., Ltd (ZTT), is a global cable and wire manufacturing entity established since 1992. From the start, ZTT entered the cable and wire industry with a core product of fiber optic cable and has since been famed as the “pioneer” in this industry. ZTT has always focus on high-value cable production. With its fame as “the first special optical fiber cable company listed in China”, it was offered a listing on the Shanghai Stock Exchange on Oct 24, 2002. (stock code: 600522)

Progressive accumulation on production experience and constant upgrading in quality management system has led to rapid growth and plant expansion. ZTT now has 3 complete production chain of cable and wire.









ZTT sees its business as providing and conforming to industry standard of requirements for the many products it produces. To further enhance each cable product superiority, ZTT also produces accessories for cable installation, protection and termination. Two (2) strategic subsidiary companies were formed to focus on fitting designing, developing and manufacturing including an onsite service team.

ZTT has been labelled the “Cable factory with most active R&D” in China; Seven (7) numbers in total: Strategic Development Research Center, Optic Equipment Research Center, Submarine Cable Research Center, Material Research Center, Up-rating Conductor Research Center, Fiber Optics Research Center and New Energy Research Center. These centers has been the continuing source of ZTT’s sustainable growth for innovation development and has now been considered an integral arm of the ZTT Group.

Compelling industrial growth and speed of commercial and construction requirements has caused ZTT to spread its wings to 42 oversea offices and 2 manufacturing entity. One in India and another in Brazil.

Strong and resilient amidst global challenges, she has risen among the best in the industry for its excellent commitment to deliver global standard products.

With over 7000 staffs, ZTT products is now available globally to telecom operators, power grid, oil & gas and the renewable green energy sectors.

I.Optic Fiber chain:

Preform, Optic Fiber Cable (duct, buried, aerial, FTTx, submarine), and generic product as: ADSS, OPGW, Down Well Fiber Optic Cable, Air Blown Fiber Optic Cable etc.

II.Aluminium Conductor chain:

AAC, AAAC, ACSR, AVCSR.AW, ACAR, AACSR and generic product as: Thermal-resistant Aluminium Alloy Conductor, Invar Core Conductor, GAP Type Conductor and Annealed Aluminium Conductor.

III.Copper Cable chain:

Radio Frequency Cable, Marine Cable, Offshore Cable, Power Cable and Submarine Power Cable.





Submarine Cable Plant

Largest and most comprehensive manufacturing base for submarine cable in ASIA.

Zhongtian Technology Submarine Cable Co., Ltd (ZTTSC) is a 100% owned subsidiary of the ZTT group. It is also by far the largest and most comprehensive manufacturing base for submarine cable in ASIA. It produces MV and HV Submarine Power or Composite Cable as well as Submarine Fiber Optic Cable.

ZTTSC was set up in 1999 with both R&D and world class manufacturing facilities and thus earned the “Pioneer” in Chinese submarine cable manufacturing history.

With heritage knowledge of fiber optic from ZTT, extensive research and analysis was carried out on cable mechanic performance with stimulated installation process. Soon, we developed our own technology for submarine fiber optic cable manufacturing. With the exception of traditional telecommunication operator market, ZTTSC submarine fiber optic cable has been sold globally and widely used for oil & gas seismic and oceanographic survey system.

Adding knowledge on cable mechanical performance and expert installation, together with matured technology



international berthing vessel. HVAC, HVDC and other customized multiple function submarine cable was also developed.

ZTTSC was invited and participated in almost all significant submarine cable projects in Chinese water. Her contribution to the submarine cable system in China can be found in most industries, which includes: offshore oil & gas, offshore green energy, submarine telecommunication system, seismic and oceanographic survey system. In China, ZTTSC is famed for being:

- The first subsea cable manufacturer to obtain the UJ certificate for submarine FO cable for repeater system
- The first subsea cable manufacturer to obtain the UQJ certificate for submarine FO cable for unrepeater system
- The first subsea cable manufacturer to supply 3cores, 110kv AC submarine cable
- The first subsea cable manufacturer to supply +/- 210kV DC submarine cable
- The biggest manufacturer to make export of submarine cable to international market

ZTT and ZTTSC plays more than just a significant role in the local market, together with other star development of China heavy industry; both contributes to the world an economical and yet stable solution of submarine cable system.

of XLPE insulation extrusion, advance manufacturing facilities and super clean compound from international acclaimed supplier; ZTTSC was soon accepted by local and international market for supply of submarine power and composite cable not only to oil & gas but electric grid companies as well.

Riding the benefits of the 2010 boom and offshore green energy demand, ZTTSC escalated its expansion plan and built the gigantic cable processing tower with 2nos VCV lines; a new cabling and armoring line and set up a huge multiple turntable and expanded our exclusive wharf to suit



State-of-the-Art Manufacturing Facilities

The plant locates by the threshold of the Yangtze River, one of the biggest river in the world and is accessible by various international vessel. ZTTSC had made this location its home base since 2004 and had been expanding and constantly upgrading its wharf facilities to accommodate new developments.

The plant is equipped with modern facilities suitable for long length submarine cable manufacturing. It includes 9 nos. dug-in storage spools for finished cable storage, and 2nos. large turntable of 20m (3500tons) & 30m (8000tons) diameter in open area for finished cable storage. There are also a number of in-house turntable for chain process storage of semi-finished products.

For submarine fiber optic manufacturing, there are 5nos. armoring line to support production of customized Submarine Fiber Optic Cable as per sea environment requirement.

The plant is set up with 2nos. VCV line, suitable for cable voltage of up to 500kV, and 2 nos. CCV line for cable voltage of less than 220kv. All equipment are suitable for extrusion of XLPE in triple processes with dry cooling system. Degassing system is equipped accordingly. Super clean raw material are obtained from International source of reputable brand and fed into the extruder through the Clean Class Room.

For Submarine Power or Composite Cable, the plant are equipped with 2 lay-up machines with either drum or turntable in order for chain process storage and finished cable storage, thus permitting production of long and continuous factory length of submarine cable. Applying controlled factory joints on each phase, the maximum length shall only be limited by the storage and carrying vessel's capacity.





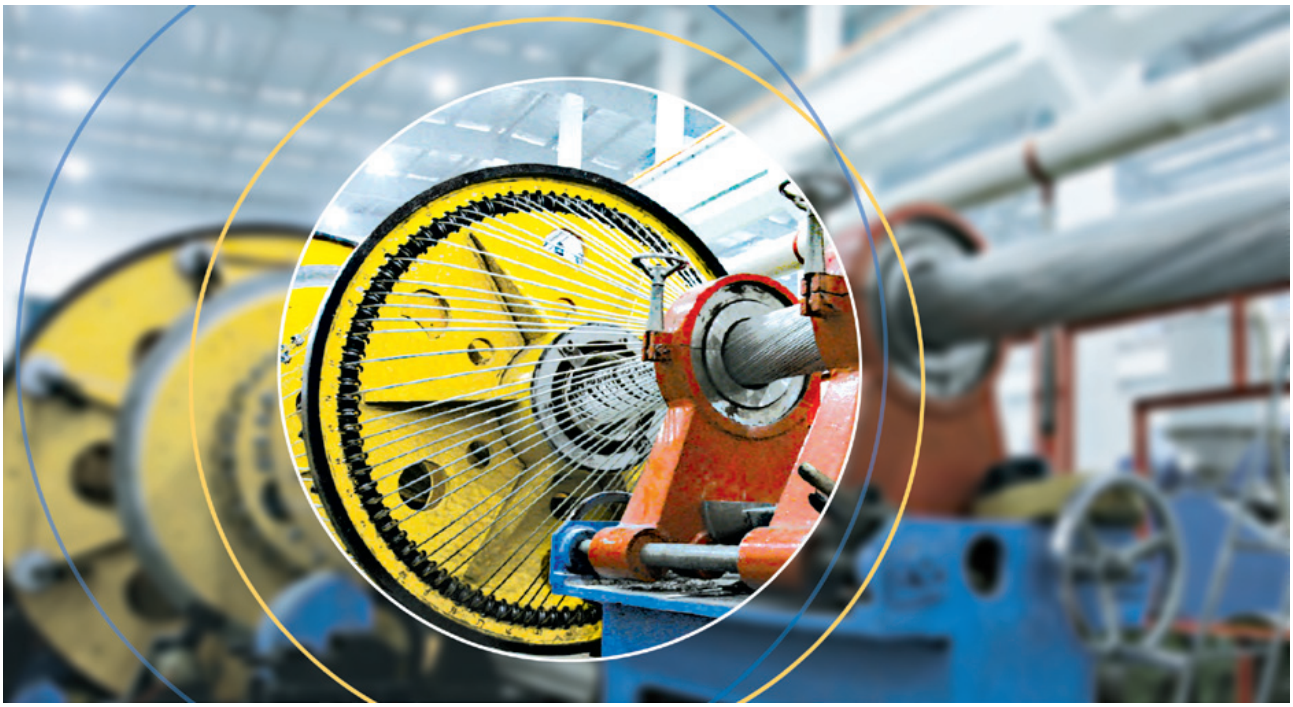








No Compromise on QA & HSE



Submarine cable is vital in any submarine cable system, and shall need the strictest quality assurance.

Due to the costly breakdown, recovery and repair operation, submarine cable is always vital in any submarine cable system, and demands the strictest quality assurance, although the technology and material to produce submarine cable is a matured source for submarine FO cable and MV submarine cable.

ZTTSC set up the quality assurance system as per ISO 9001:2008, incorporated his experience on manufacturing. The whole quality assurance system cover the design and engineering, raw material selection, manufacturing, and FAT, load out. ZTTSC also supply the service for site storage testing and maintenance.


SGS

Zhongtian Technology
Submarine Cable Co.,Ltd.

ISO 14001:2004


SGS

Zhongtian Technology
Submarine Cable Co.,Ltd.

OHSAS 18001:2007


DNV

DET NORSKE VERITAS
MANAGEMENT SYSTEM CERTIFICATE

Zhongtian Technology Submarine Cable Co., Ltd.

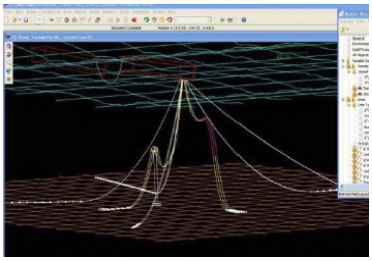
ISO 9001:2008

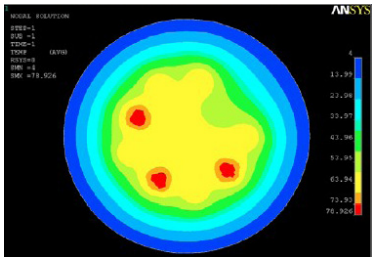
Design, Manufacture and Service of Cables
(Submarine Power Cables, Submarine Optical Fiber Cables, Submarine Optical Fiber Composite Power Cables, Power Cables, Aerial Insulated Cables, Plastic Insulated Control Cables, Overhead Conductors)

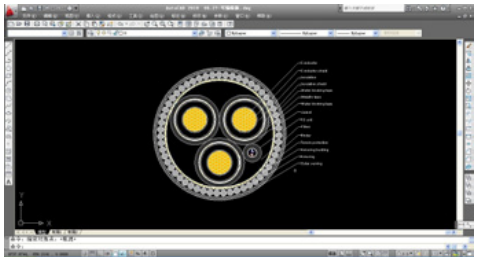
No Compromise on QA & HSE

Engineering verification

Although submarine power cable and submarine FO cable is by far a matured product; certain characteristics and criteria makes them super robust and yet delicate from normal cable and thus classify itself as a higher technological product. ZTT amasses great experience on various cable type design for its due purpose and performances. Certain industry computer are also used to assist in the designing and analyzing of results; eg. DNV Stableline, Fatfree, CableCAD, Orcaflex, Solidworks..etc.







Raw material selection

Quality of raw material is a key determinant for guarantee of the tenure of submarine cable. Besides complying against regional standard requirement, ZTT maintained a stable list of qualified raw material supplier. Internationally acclaimed brand for key material is always preferred. All imported material shall also be subjected to our in-house QC check for their desire quality.













No Compromise on QA & HSE



Competence Testing Center

Product testing is an integral part of cable development and final cable delivery. ZTTSC possess a complete and competence test center within its plant especially for EHV test for HVAC and HVDC, and mechanical test like tensile and bending test, coiling, impact, crush, and also environment test, for example aging test, water penetration tests, etc.







Submarine Fiber Optic Cable



Submarine Fiber Optic cable are used to link islands, continents, offshore platforms, underwater equipment for seismic and oceanographic survey, etc.

Design conception

ZTTSC submarine FO cables are based on stainless steel tube design, whether of central tube or stranded tubes. As our analysis determines; testing and accrual experience stainless steel tube performed better on its mechanical and environment resistance.

Customized Submarine Fiber Optic cable

The sea condition is never the same or stable. Sea survey shall always be conducted and results ascertained for the right installation procedure and cable protection against undue damage by the rough current and or sea bottom rocks and corals. ZTTSC is able to provide such expertise in area of designing the correct protection of armor layering etc.

UJ & UQJ certified cable

ZTT possesses 2 cable series which has been certified and registered in UJ consortium

S17 cable family provides 4 cable types and suitable for repeater system to water depth of 8000meter

Q10 cable family provides 7 cable types and suitable for repeaterless system to water depth of 3000meter.


UJ Consortium

Universal Joint Qualification Test Certificate 200/515

This Certificate confirms Universal Quick Joint (UQJ) Qualification of :

ZTT SOFC Q10 LW80

to

ZTT SOFC Q10 LW80

to a cable NTTS of 40kN, maximum o3m sheave tension of 24kN, to a design depth of 3000metres


UJ Consortium

Universal Joint Qualification Test Certificate 200/472

This Certificate confirms Universal Joint (UJ) Qualification of :

ZTT SOFC S17 DA

to

ZTT SOFC S17 DA

to a maximal operational Tension of 350kN (sheave tension 200kN)







Submarine Fiber Optic Cable

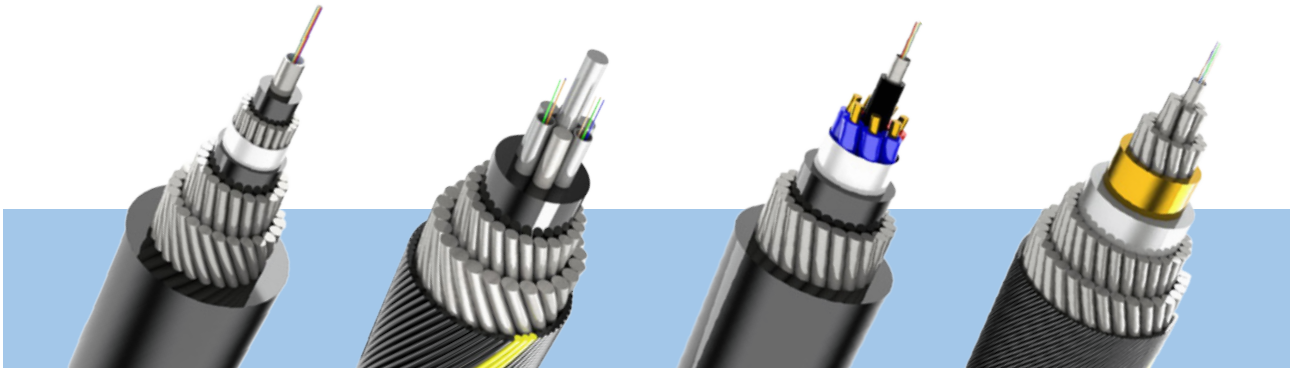


ZTT submarine optic fiber cable is UJ & UQJ certified.

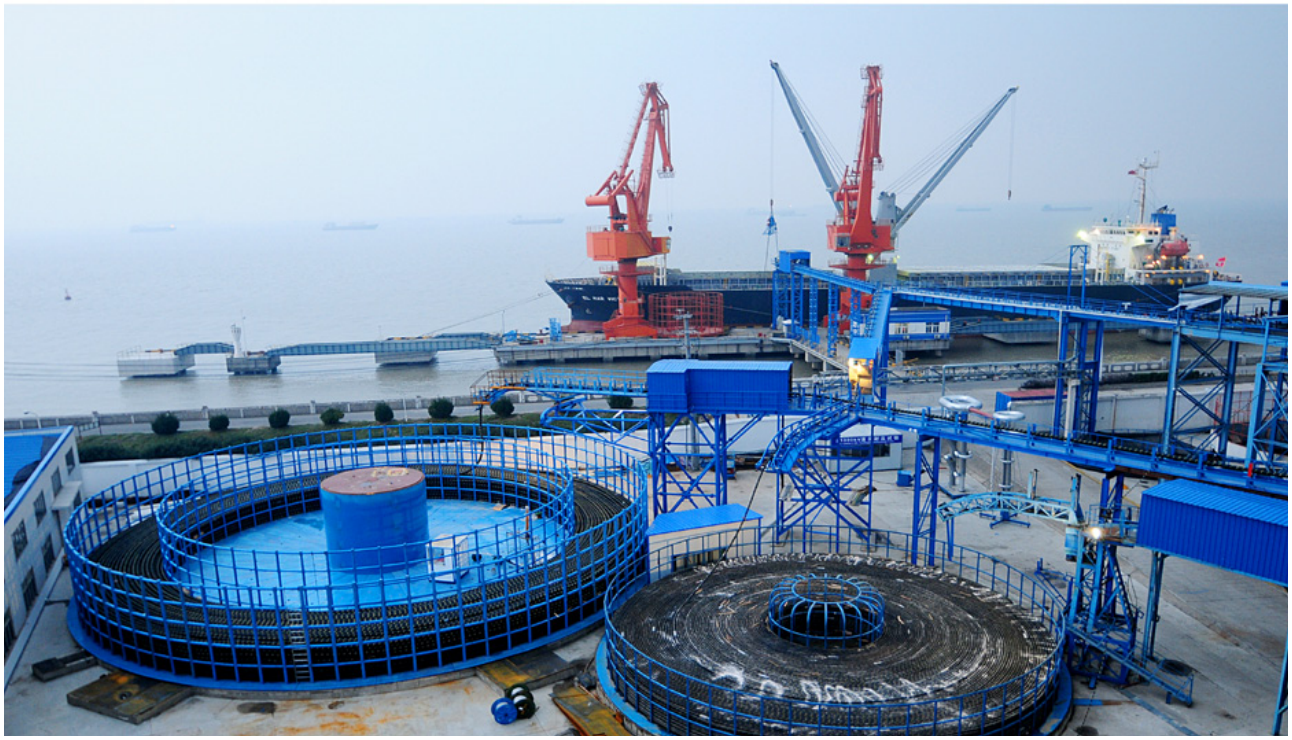
Thanks to the complete production chain on optic fiber and dedicated research work on submarine application. ZTT possess core knowledge on fiber performance, which attributes well to the submarine optic fiber cable development. ZTTSC submarine optic fiber cable links platforms, island, countries, river crossing and oceanographic observation stations, which cover customers from telecoms, oil & gas and research units etc.

ZTTSC submarine optic fiber cable has been tested by various testing bodies and found to be performing above usual requirement and as such have been very well received.

- Up to 8000m water depth
- Unlimited delivery length
- Multiple armor layers
- Available for customization



Submarine Power Cable



Submarine power cable are used for interconnection of offshore power fields, tidal wave locale, wind mill and offshore oil & gas platforms and also islands. The voltage for such application are usually less than 36kV AC type and typically uses the 3cores XLPE cables.

ZTTSC submarine power cable has been put to use in various sea conditions around the globe. From Alaska of USA, Yellow sea of China, South sea of China, Malaysia, Indonesia, Middle East, Mediterranean sea, Australia, Mexico bay, Latin America, West coast of South America etc.

ZTTSC has equip flexible facilities to produce various cable structure; single phase or 3phase, lead sheath/ copper sheath/ aluminium sheath, single armor or double armor, polypropene yarn sheath or extruded sheath etc. The material are specifically selected for different cable structure to reach the specified performance.







Submarine Power Cable



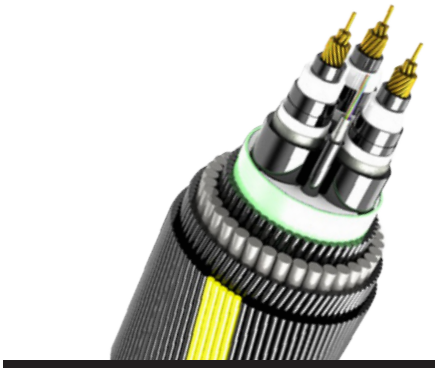
Zhuhai Guishan offshore wind farm demonstration project

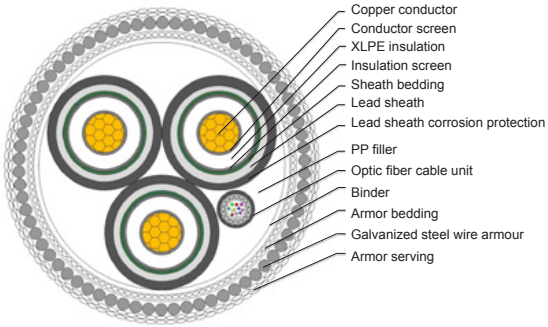
ZTTSC specializes in manufacturing long length submarine power (composite) cable.

ZTTSC has been qualified by major organization from oil & gas industry to offshore wind industry & EPC contractor over all the world.

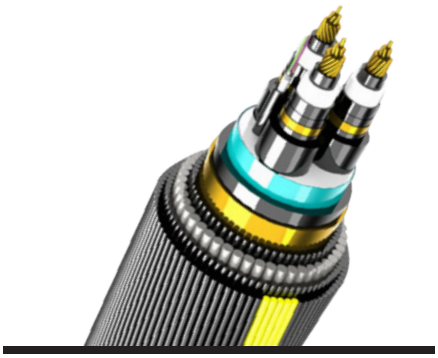
Adhering to strict QA system leads the way in our much of excellence in this business!

Subsea Composite Power Cable (Lead Sheath)





Subsea Composite Power Cable (Copper Tape + HDPE Sheath)



Typical design produce at ZTTSC.

- Lead sheath design
- Aluminium sheath design
- Extruded overall out sheath
- Double armor design

HVAC Submarine Power Cable (Up to 500kV)



Zhuhai demonstration project of offshore wind generation
66nos. x3 MW, 198MW 42km, 110kV

HV submarine power cable is specially developed for long distance transmission. To lower CO2 emission, green energy has been developed fast, in Asia and Europe, offshore wind mill has created huge demand and development of HV submarine cable, both HVAC and HVDC.

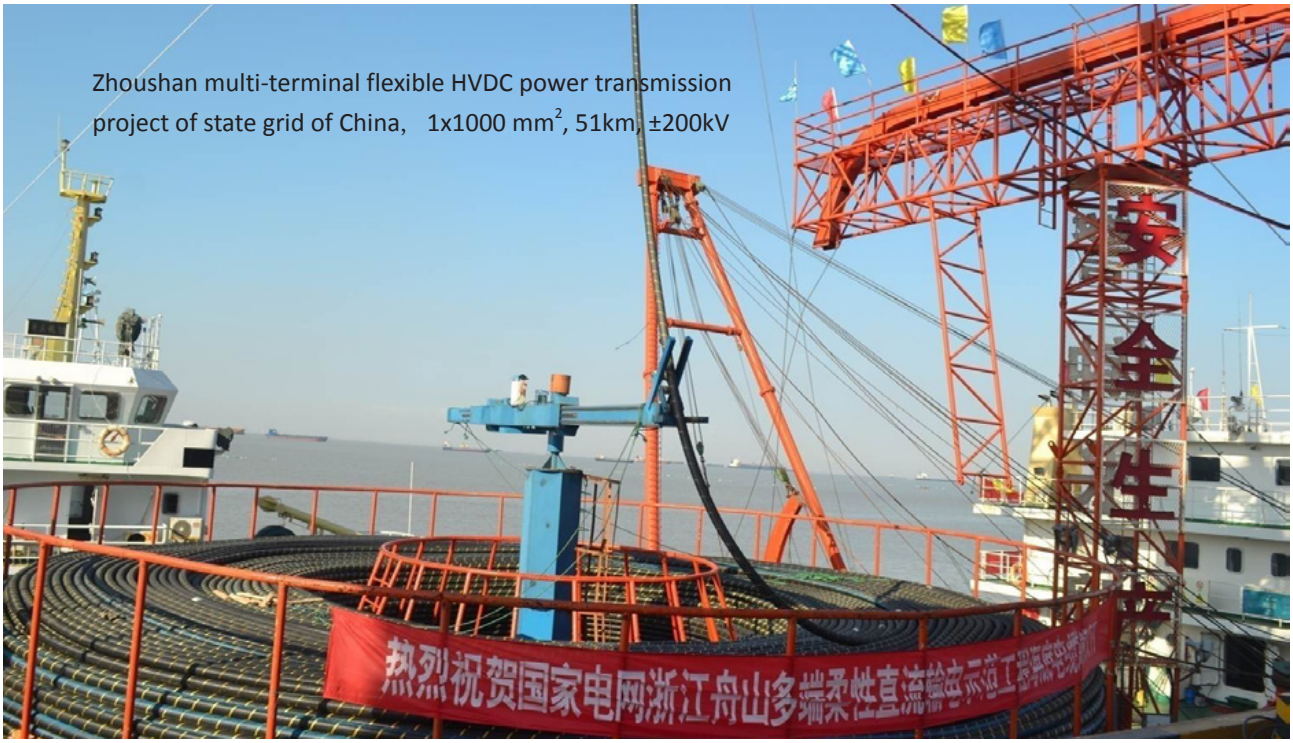
For HVAC, ZTTSC has equipped a tower with 2VCV lines for XLPE extrusion, a vertical turntable lay-up machine, multiple in-house turntable for semi-finished core, big outside turntable for finished cable, movable factory joint room, movable degassing tent, all in all, is specially for 3 phase HV AC cable. Now we can produce up to 500kV.







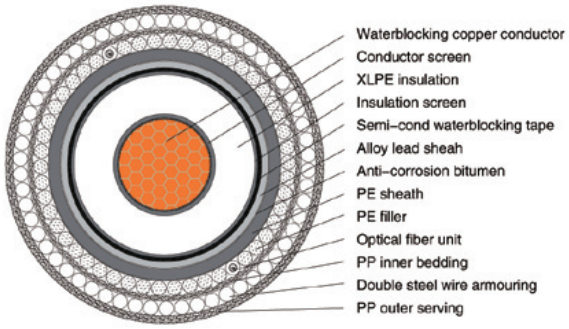
HVDC Submarine Power Cable (Up to ±320kV)



ZTT HVDC submarine cable is based on XLPE insulation, used on VSC (Voltage-Source Converter) system. Up to now, we can produce up to ±320kV HVDC.

We have in-house capability to design the cable, and make full analysis. ZTT has made the highest standards in engineering design quality assurance, manufacturing and testing in China market.

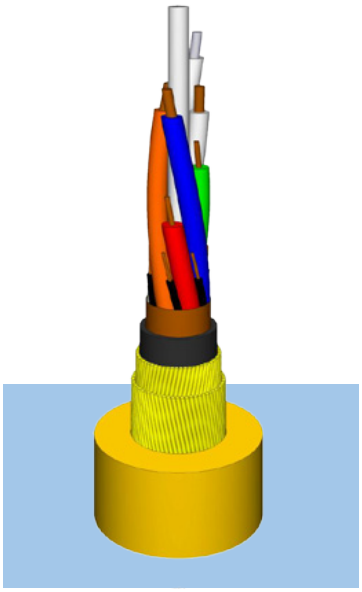




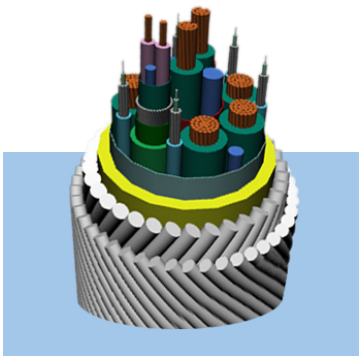
ROV Cable

ZTT has successfully developed ROV cable for National Development plan. Our design offers the compact electrical and fiber optic assembly and can be strengthened with either high strength synthetic fibers or multiple layers of armor wires to support the weight of ROV, handling and withstand vessel motion and tidal forces.

As with the ROV cable, ZTT has also developed and manufacture our own gimbal and wet connector.





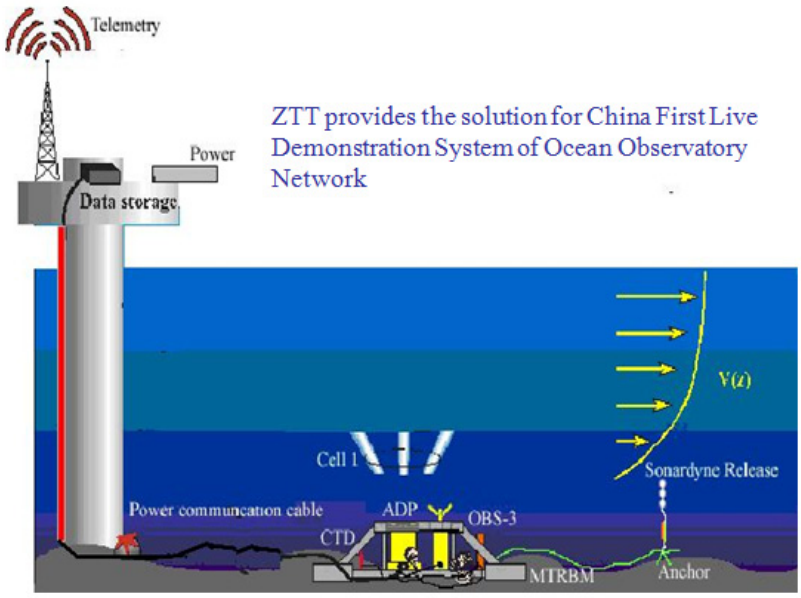




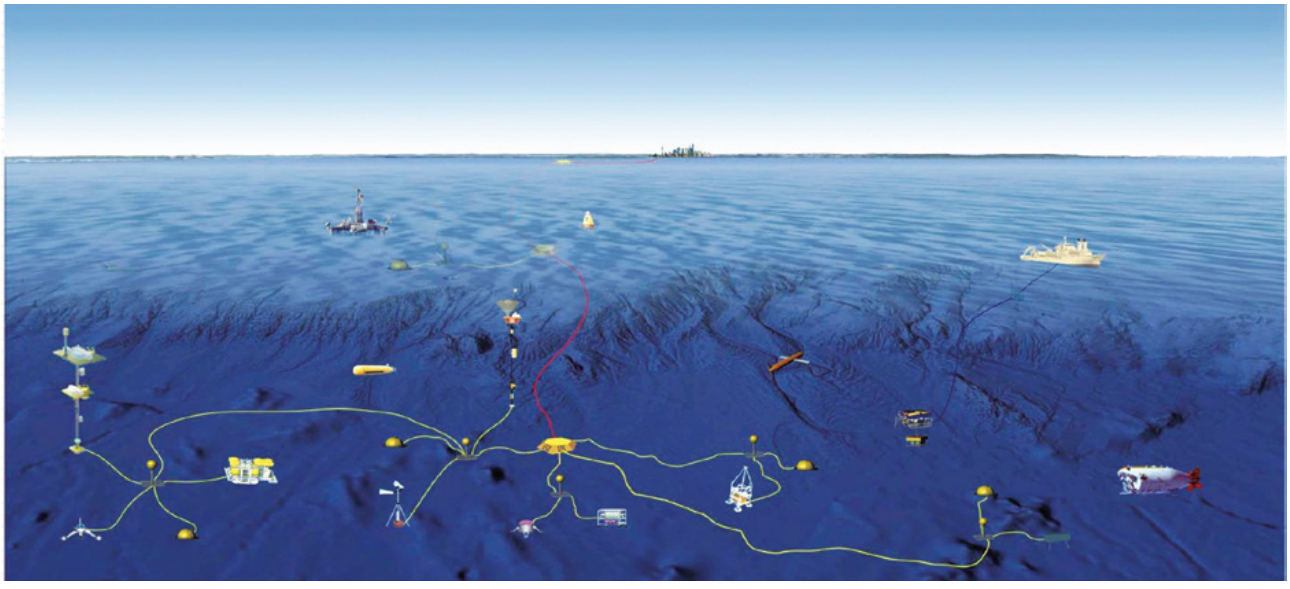
Multiple Oceanographic Applications

ZTT has been a pioneer in the submarine cable industry. We could manufacture a wide range of cable products and possess great number of manufacturing and wharf facilities. Thanks to our capacity for submarine cable manufacturing and short processing time, we have been the first choice for our customers on any special qualified submarine cable products.

Typical use in Ocean Observatory Network



Submarine composite cables used in Ocean observatory network



Professional Service



Logistics

Kilometers of submarine cable weighs much in weight tonnage even just for a single run. The challenge is always there for taking delivery. ZTT possess own harbor and lifting crane. With cable trays running 80meter from the factory or storage spools/ turntable and straight into the waiting vessel. Loading has never been time consuming. The harbor depth can receives vessel of up to 10000ton and slip right out into the international water or Shanghai International harbor; one of the biggest and busiest harbor in the world; with floating crane of more than 1000ton loading capacity, a favorite transshipment port.

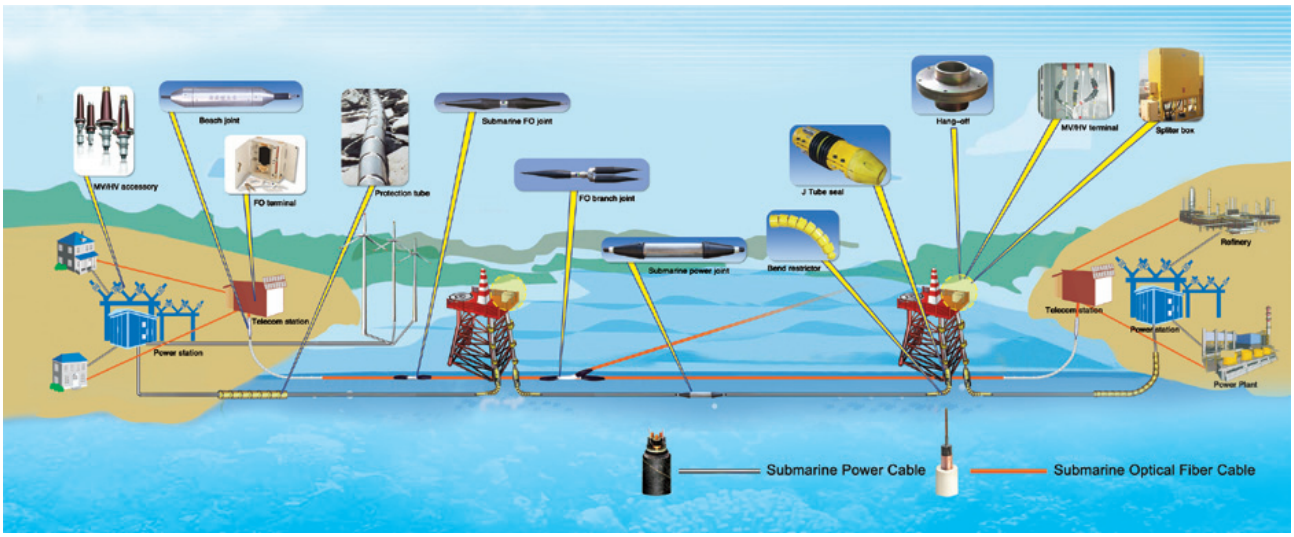


Project management

Submarine cable business is never a one-time sale process. It encompasses an interfacing amongst the parties; end user, contractor, forwarder etc. ZTT project team can also offer project management from project kick off to commissioning.



Professional Service



One-Stop shop

To achieve a complete quality guarantee, and smooth project execution, ZTT provides a complete system of accessories for installation, protection, termination and maintenance; including technician for offshore assistance, supervision, training and field testing.



On-site service

ZTT has a team of dedicated and highly experienced; qualified working engineers for on-site service; including installation, supervision, accessory assembly, emergency repair, commissioning testing etc.







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