ZTT 中天科技
Your Partner In Cable

Delivery and Transportation Schemes for ZTT Submarine Cable

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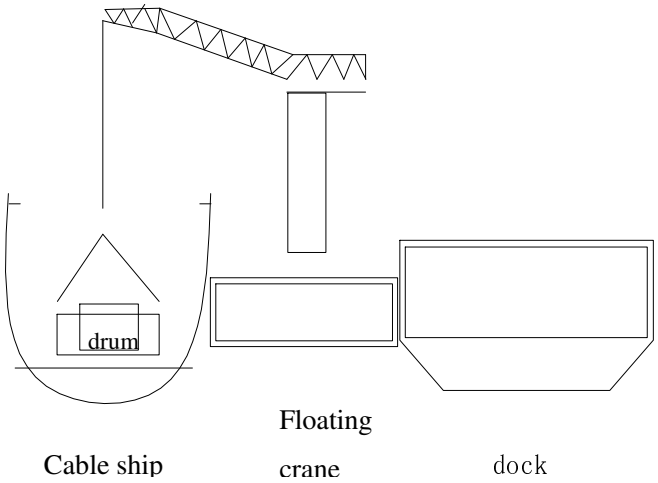
No.1 Transportation Scheme: Delivery at the factory's dock

Zhongtian Technologies preferably recommend the scheme that uses a cable ship directly to load and transport submarine cable from Zhongtian's dock. Because Zhongtian Technologies's submarine cable production workshop is stand closely by the Yangtze River, and it is only 90 km apart from the sea entrance mouth of the Yangtze River, moreover the special purpose dock for loading the cable on board can anchor 5,000-ton class cable ship all the year, and the geographical position of the dock features wide width, gentle tide, relatively straight bank, deep water depth, and free from silting-up and freezing all the year, the draught for the cable ship will be not less than 7 m, so the whole cable loading conditions will not be affected by the season alternation. The submarine cable workshop is only 80 m away from the dock, and has perfect cable transmission apparatuses, the special purpose 360° rotatable and width variable telescopic frame sticks out the dock not less than 13 m, and the untwisting height for the submarine cable achieves more than 18 m. The above described dock loading conditions can fully meet the need for a cable ship to load the submarine cable, then directly sail to the sea area for laying the submarine cables, so that it can significantly to reduce the risk and probability of quality accident of submarine cables due to multi times of cable conveyance . Besides Zhongtian Technologies has four finished product pools with 12.5 m diameter and 5.5 m depth, and other four finished product pools with 8 m diameter and 5.5 m depth.

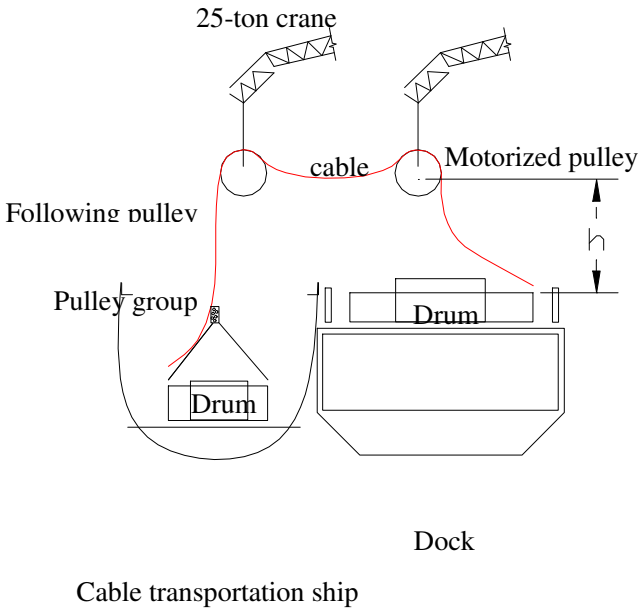
No.2 Transportation Scheme: In site cable conveying delivery scheme

If the customer requires us to transport the submarine cables to customer's dock or the site dock, we can provide two optional cable conveying modes: wholly hosting cable conveying with basket, and cable conveying in bulk. Of which the cable conveying in bulk can further classified into two modes according to the in situ facilities: dynamic pulley transmission and caterpillar-truss system.



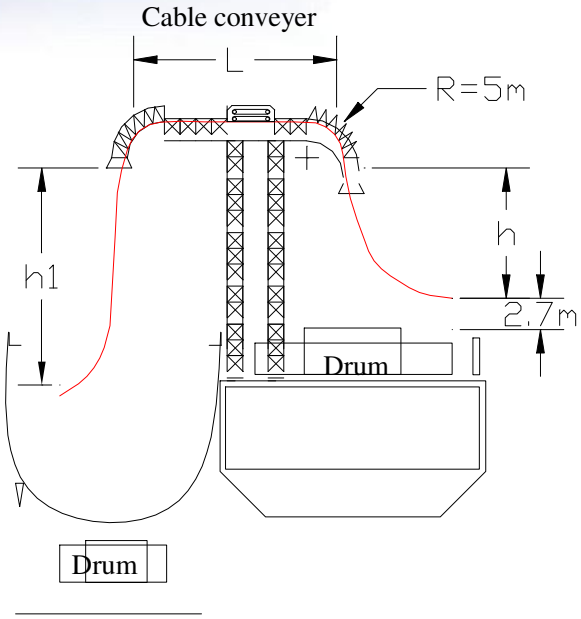
Schematic diagram of wholly hoisting cable conveying with basket

(1) Wholly hoisting cable conveying with basket. As shown in the above diagram the submarine cable together with basket are hoisted from the transportation ship to the dock. This method is relatively simpler, but in view of the engineering practice the diameters of the submarine cables are generally large, the necessary winding bending radius is also rather large, so it is necessary to have very large diameter of drums. In addition submarine cables generally have heavy weight, therefore the basket must not only have very large sizes but also have very high strength. In practice the steel materials for making basket is difficult to be recovered after completing the laying engineering, they can only be sold as waste steel materials. Consequently this cable conveying method is not reasonable from the viewpoint of economics. Secondary, wholly hoisting method raises higher requirement to the choice of cranes. Since the weight is very heavy only heavy-duty floating crane can be considered, furthermore the suitable rotation radius and suitable hoisting ropes and tools also must be considered.



Schematic diagram of dynamic pulley transmission method

(2) Dynamic pulley transmission cable conveying method. As shown in the above diagram, the dynamic pulley transmission cable conveying method between transportation ship and dock employs two pulleys to suspend above the barrels of the drum in the transportation ship and the drum in the dock, respectively. After hoisting the cable up to a certain height the motorized pulley pulls off the cable into the drum in the dock. The motorized pulley provides the power for cable conveying, and its hoisting has to meet the requirement of the submarine cable untwisting height h, in the same time, in order to meet the requirement of allowable bending radius for the submarinecable the diameter of the motorized and following pulleys must be more than 3 m. The suspension of the motorized pulley can utilize the ship crane of over 25 tons in the dock. The main function of the following pulley is to untwist and hoist the cable from the transportation ship, and ensure the submarine cable to be in appropriate bending radius. In order to ensure uniform untwisting and keep basically consistent torsion a caging device composed of a pulley group should be installed right above the barrel of the drum. It is feasible technically to employ dynamic pulley transmission cable conveying method. The necessary equipments in operation mainly include at least two cranes of above 25-ton class; the equipments that need to be manufactured mainly are the motorized pulley and the following pulley. The motorized pulley needs motor to drive, and its manufacturing is simple.



Cable transportation ship Installation ship

Schematic diagram of caterpillar-truss system method

(3) Caterpillar-truss system cable conveying method. As shown in the abovediagram, if there is no suitable crane equipment in the dock and the dynamic pulley transmission cable conveying method can not be employed, this cable conveying method can be used. The middle caterpillar provides power, and a set of truss system should be manufactured according to the specific situation of the dock, the necessary untwisting height for the submarine cable, and the cable storage position in the dock. The structure of the truss employs hinge joint, so as to facilitate mounting and dismounting. The disadvantage of this method is that the truss system must be manufactured and installed in the conveying site, if it is applied only once, this method will be waste and not reasonable from economics viewpoint.

Due to the specificity of submarine cable products, every cable conveying process will cause the risk of cable quality accident occurring significantly increased, it is impossible to carry out cable conveying unlimitedly. Zhongtian Technologies promise that when the following two premise requisites satisfied, Zhongtian Technologies will bear the responsibility for the products if the quality accident of the cable occurred: a. The cable conveying counts during the period from ex-factory to installation/ laying are not more than twice(i.e. except for the twice of ex-factory loading, and installation/ laying); b. The

operation rules of the cable conveying process are fully in accordance with the scheme confirmed by the both parties, and the handling operation is carried out under the direction of the supervisory people from Zhongtian Technologies. Except for the above mentioned two premise requisites Zhongtian Technologies will not be responsible for the cable quality accidents caused by excessive cable conveying operation or mistaken cable conveying operation that violates Zhongtian Technologies's requirements. In addition, Zhongtian Technologies promises to send all the necessary people to handle the cable conveying operation.