

Development of A New Type of Winch with Steel Armoured Umbilical Cable Used in Submarine Rescue Chamber(SRC) with Mobility

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Summary

With the number of submarines increasing rapidly, there are many accidents occurred during submarines's cruising. Especially the universal attentions to submarine rescue are awakened by the Russian Navy's second-generation strategic nuclear submarine "Kursk" accident.

One of the important means for submarine rescue is SRC. Since 70th last century abroad, Navy's submarine rescue armies have been equipped with the SRCs. Entering 21th-century, it is necessary for mating exercises between SRC and disabled submarine(DISSUB) chosen still by Navy's submarine rescue armies in Navy's large military drills at home and abroad. The dedicated mating platforms for the SRCs are also fitted to China's all submarines.

The main warfare missions of SRC with mobility is submarine rescue rapidly. After the DISSUB is rapidly mated with SRC, The survivors will be transferred to the surface from DISSUB, or the crewmen will be transported to the submarine from the surface for the missions of submarine rescue. The SRC with mobility is a very important equipment used for submarine rescue in China. It's key technical character is that rapidly transporting, rapidly shipping and rapidly rescuing.

The main purpose of this paper is to briefly introduce operating process and system configuration for a new type of winch with Steel Armoured Umbilical Cable Used in SRC with Mobility, The operating conditions, function requirements and missions for the winch are specified. Firstly, the working load for winch drum is calculated according to Norway's Rules for certification and classification of submersibles(DNV) and Chinese Rules for lifting appliances of ships and offshore installations. Then, the technical parameter and function requirements for winch are presented. The driving power parameters for winch are given. Finally, land and open water tank tests have been finished. From the open water test one can conclude that the winch can well meet needs of launch and recovery for SRC with Mobility. Through analysis and research for the above test result, it is believed by authors that this research work can be used as a technical basis to develop launch and recovery system for China's submarine rescue system and deep-sea manned/unmanned submersibles such as HOV, ROV, and AUV.

