

정유압 구동식 변속기를 사용한 새로운 파력 발전기 설계

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A New Design of Wave Energy Generator Using Hydrostatic Transmission

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An innovative design of a floating-buoy wave energy converter (WEC) using hydrostatic transmission (HST), named HSTWEC, is presented in this paper. The system is designed to convert ocean wave fluctuation into electricity by using the HST circuit and an electric generator. Based on the floating-buoy concept, the wave forces the sub-buoy to move up and down. Consequently, the electric power can be obtained from the generator in both the moving directions of the sub-buoy through the HST circuit as shown in Fig. 1. In order to investigate the HSTWEC operations, a mathematical model of the system is indispensable. In addition, the method to control the HSTWEC, including: pump displacement control, tension adjustment control and ballast weight control, is also discussed in this paper. Finally, the design concept as well as simulation results indicated that this HSTWEC design is an effective solution and possible to fabricate for wave energy generation.

Key words : Wave Energy(파력), Hydrostatic Transmission(정유압 변속기), Generator(발전기), High Efficiency(고 효율)

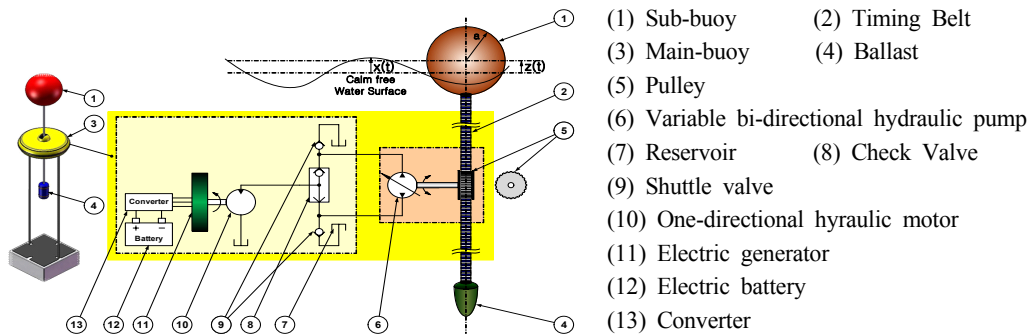


Fig. 1. Proposed structure of HSTWEC

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