

초전도케이블시스템 유지·보수에 따른 신뢰성 평가 시험

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Reliability Assesment Test on the Regular Maintenance of HTS Cable System

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Abstract : KEPCO High Temperature Superconducting (HTS) cable system rated with 3 ϕ , 22.9kV, 1250A was laid in 2006, and the long term test is in progress. The HTS cable system with the cooling system has been operated below cryogenic temperature. That environment exposes the system to the thermo-mechanical stress due to the significant temperature difference, and the cooling system has moving parts for the forced circulation of the coolant. Therefore the HTS cable system experiences thermal fatigue and moving part such as liquid nitrogen pump need a regular replacement every 5000 hours

Building the assessment criterion, the maintenance procedure was established and regular preventive maintenance was done; improvement of the termination structure and the replacement of the bearing of liquid nitrogen pump. Following the proper process, the reliability assessment test including He leakage detection and the stability of flow rate was performed. This paper describes the process and result of the first regular maintenance of KEPCO HTS cable system

Key Words : HTS cable, regular maintenance, KEPCO, reliability assessment