

케비테이션 제트 유동을 이용한 발전 시스템

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A Power-Generation System using Cavitation jet flow

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Cavitation phenomenon has long been a difficult problem that regarded as negative event to fluid machines or industrial facilities. In the latest, however, some engineers became to understand the power of cavitation and use it to cleaning wall after developing cavitation nozzle. In this paper, we introduce new concept for power-generation system using cavitation jet flow made by nozzle and impulse turbine in vacuum condition. The vacuum needed to make cavitation is generated naturally by Torricelli's vacuum, 10.23m effective head drop without additional power. We analyzed water's boiling and the steam's mean free path according to vacuum purity levels for nozzles and turbine blades. The nozzles make water accelerate in the neck and boil in expansion section of the nozzles. The shape of the impulse turbine is designed for absorption of the molecule's kinetic energy of the steam.

Key words : Cavitation(공동), Mean free Path(평균 자유 행로), Impulse Turbine(충동터빈), Torricelli's Vacuum(토리첼리 진공), Nozzle(노즐), 비등(Boiling)

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도시철도용 에너지저장시스템 개발에 관한 연구

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Development of Energy Storage System for Urban Transit System

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The energy storage system is considered to be one of the useful devices for energy storing and recycling. the energy storage system can save energy cost and stabilize the system voltage. This paper presents the development of two energy storage systems. One is 750V system for light rail system. the other is 1500V system for heavy rail system.

Key words : Energy storage system(에너지저장시스템), Urban transit system(도시철도시스템), light rail system(경량 전철시스템), heavy rail system(중량전철시스템)

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