

## 가시화 엔진을 이용한 디젤엔진내의 유동장 측정에 관한 연구

한용태<sup>†</sup> · 황규민<sup>\*</sup>(한양대 원) · 이기형<sup>\*\*</sup>(한양대)**An Experimental Study on the Measurement of Flow Field in a Direct Diesel Engine Using a Single Cylinder Visualization Engine**

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**Key Words:** Visualization engine(가시화엔진), Swirl head(스윙형헤드), Non-swirl head(비스윙형헤드)

**Abstract :** This studies the effects of the swirl for the variation of intake port configuration that is key parameters in the flow field of direct injection diesel engines. In-cylinder flow characteristics in known to have significant effects on air-fuel mixing, combustion, and emissions. To investigate the effects of the swirl flow, various rpm(250,500,750) and two different intake port were used. And to evaluate the swirl motion in the flow field visualization engine, steady state flow test was conducted. Helical port intake port and SCV(Swirl Control Valve)were selected as the design parameters to increase the swirl ratio were higher than those of SCV for the swirl head type. So, we could strengthen the swirl in the flow field with the swirl in the flow field with the swirl head type and don't using SCV. And we could measure the qualitative grade of swirl by capturing the scattering signal of microballon from ICCD camera in the visualization engine.

## 음향방출기술을 이용한 원자력발전소 밸브누설 진단 및 평가

이상국<sup>†</sup> · 이준신<sup>\*</sup> · 이선기<sup>\*</sup> · 손석만<sup>\*</sup> · 이육륜<sup>\*</sup>(전력연구원)**Diagnosis and Evaluation of Leakage for Nuclear Power Plant Valve Using Acoustic Emission**

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**Key Words:** Valve(밸브), Leakage(누설), Acoustic Emission(음향방출), Background Noise(주변잡음), Threshold Level(문턱값), Nuclear Power Plant(원자력발전소)

**Abstract :** In this study, the acoustic emission signal and background noise value associated with leakage through steam and water valves (4/3~10 inch valves) has been investigated at site. Results from the simulated experiment were compared with data from the power plant. To attain a threshold level of detectable acoustic emission, background noise data in site were measured. As a result of these studies, we conformed that it can be a optimal method for assessing valve leakage and background noise in actual power plant to compare with between obtained results in laboratory and actual measuring data from the power plant valves.