

2차원 원심압축기의 성능 및 유동 특성에 관한 실험적 연구

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Key Words: 2-D centrifugal compressor(2차원 원심압축기), Pressure loss(압력손실), Jet flow(제트 유동)**Abstract :** The performance and flow characteristics of a 2-D centrifugal compressor with vaneless diffuser were studied. 2-D impeller has several distinctive features different from 3-D conventional impeller. Representatively, 2-D impeller has no inducer and twist of blade. Since it has constant blade height keeping the flow area approximately constant, there is no diffusion in the impeller passage. As a result, unexpected pressure loss occurs at impeller inlet region and a regional strong jet flow appears in impeller discharge flow. Total pressure ratio was 1.15 at mass flow rate of 0.021kg/sec and rotational speed of 45000rpm. The test facility was directly driven by a high speed electric motor without gear box and the test was conducted at 35000, 40000 and 45000rpm, respectively.

INCONEL 600과 690 합금의 프레팅 피로수명에 관한 연구

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Key Words: Inconel 600(인코넬 600), Inconel 690(인코넬 690), Fretting Fatigue(프레팅 피로), Fatigue Life(피로수명), Friction Force(마찰력)**Abstract :** The fretting fatigue occurs at lower stress amplitude and at lower cycles of cyclic loading than plain fatigue. INCONEL 600 and 690 alloy are high-chromium nickel alloy having excellent resistance to many corrosive aqueous media and high-temperature atmospheres. In this paper, the effect of fretting damage on fatigue behavior for INCONEL 600 and 690 alloy were studied. Also, various kinds of mechanical tests such as hardness, tension and plain fatigue tests are performed. Through these experiments, it is found that the fretting fatigue strength decreased about 40~70% compared to the plain fatigue strength in two materials. In fretting fatigue, the wear debris is observed on the contact surface, and the oblique micro-cracks at an earlier stage are initiated.