

스팀터빈용 래비린스 실의 누설량 규명을 위한  
공기상사 실험 및 해석

Air Similarity Test and Analysis of Steam Turbine Labyrinth Seal  
for Leakage Verification

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**Key Words:** Labyrinth Seal(래비린스 실), Air Similarity(공기 상사), Leakage verification(누설량 규명)

ABSTRACT

The leakage characteristic is an important factor in power plant. However, most of power plant have efficiency problem which is occurred leaking between high pressure steam turbine axle and stator. The labyrinth seal which is used between the main turbine axle and stator in the power plant. Because it is able to be non-contact seal and it is minimize clearance to decrease the leakage. But its actual system is too huge to experiment. Therefore, most steam turbine seal performance tests were conducted by air similarity test. This paper described a test facility and program for air similarity test of high pressure steam turbine seal. A test facility has been designed and built to evaluate leakage verification of labyrinth seal. The test facility consist of air compressor, anti-swirl labyrinth seal for 1/3 air similarity model, pressure transducer, air flow measure system, instrumentation and auxiliary system. For evaluation of steam turbine seal performance, the air similarity test of labyrinth seal leakage verification was conducted and we compared experiment data and analysis result.

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