음향가진을 이용한 풍동터빈 날개의 운전형상 변형 분석

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Operational Modal Analysis of a Wind Turbine Wing Using Acoustical Excitation

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Key Words : Operational Modal Analysis, Acoustical Excitation

Abstract : Operational Modal Analysis also known as Ambient Modal Analysis has an increasing interest in mechanical engineering. Especially on big structures where the excitation and not less important the determination of the forces is most often a problem. In a structure like a wind turbine wing where the modes occur both close in frequency and bi-directional the Ambient excitation has big advantages. In this paper modal parameters are identified from the wing by operational modal analysis. For the parameter identification both parametric and non-parametric techniques are used. Advantages and disadvantages are discussed and results from the different techniques are compared.

통계적 에너지 해석 기법에 의한 공조용 로타리 압축기의 소음 진동 전달 경로 해석

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A Study on the Noise and Vibration Transmission Path of Rolling Pistion Type Rotary Compressor Using SEA

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Key Words : Hermetic Compressor(밀폐형 압축기), SEA(통계적 에너지 해석), Modal Density(모드밀도), Damping Loss Factor(내부손실계수), Coupling Loss Factor(결합손실계수)

Abstract : Hermetic rotary compressor is one of the most important components for air conditioning system since it has a great effect on both the performance and the noise and vibration of the system. Noise and vibration of rotary compressor is occurred due to gas pulsation during compression process and unbalanced dynamic force. In order to reduce noise and vibration, it is necessary to identify sources of noise and vibration and effectively control them. Many approaches have been tried to identify noise sources of compressor. However, compressor noise source identification has proven to be difficult since the characteristics of compressor noise are complicated due to the interaction of the compressor parts and gas pulsation. In this work, Statistical Energy Analysis has been used to trace the energy flow in the compressor and identify transmission paths from the noise source to the sound field.