혼류형 팬의 설계변수가 성능에 미치는 영향에 대한 실험적 연구

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Experimental Study for the Effect of Design Parameters on the Performance of Mixed-Flow Fans

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Key Words: Back Swept Angle(후퇴각), Design Parameter(설계변수), Guide Vane(안내깃), Mixed-Flow Fan(혼류형 팬), Performance(성능)

Abstract : This study aims to analyze the effects of design parameters of mixed-flow fans. The eight kinds of mixed impellers with backward curved blades, which have four different back swept angles of hub plate, were selected. The impellers having exit blade angle of 45° and the range of 6 to 12 for number of blades were designed. The three kinds of casing having different guide vane angles were selected and organized with impellers to evaluate the performance of mixed-flow fans.

유동 균형을 고려한 유량 균일 분포에 관한 연구

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A Study on the Distribution of Flow Rate Equality for the Consideration of Flow Balance

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Key Words: Flow balance(유동균형), PIV, Flow enhancements(유동촉진), Flow visualization(유동가시화), Flow distribution(유동분포)

Abstract : The present model is come from the cooling chamber of a refrigerator that includes a compressor, a coil-condenser and an axial flow fan for a forced blowing. The geometric arrangement of all components is fixed. However, the size and the position of both the inlet and outlet ports one modified for the improved flow distribution around the compressor requires large flow rates for the effective cooling. The main methodology in PIV measurements of the flows inside the chamber. The optimal sizes and locations of the inlet and outlet grill are found by the comparisons of the flow profiles around the compressor. In addition the unwanted reverse flow is happened for the case of unbalanced inflow and outflow situation. The improved model shows the pronounced flow rate increasement around a compressor. The improved system is realized by the modified inlet ports with balanced outlet.