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ENERGY SAVINGS ON CENTRIFUGAL FANS USING INLET GUIDE VANES

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Abstract

The present study of fitting the inlet guide vanes at the entrance of centrifugal fan impeller is to rectify the non uniformity of the flow and to eliminate the vortices that are generated by the existence of inlet distortion. The main objective of this work is to assess the use of the inlet guide vanes (IGV) to improve the fan performance and saving of energy. For this purpose the ring of blades in radial direction i.e. Radial cascade, with different exit blade angles of impellers is used. Comparison with free inlet (without IGV) fans is performed. Measurement of static head, shaft power and energy savings at different loads are made for different cases. The analysis of these measurements gives some information concerning the operating range and how energy could be saved in V.A.V. (variable air volume) system in air conditioning. By using the above technique the overall size of the fan could be reduced.

Keywords : Centrifugal fan, VAV, IGV.

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