

# EFFECT OF INLET VANE ANGLE OF A PARTIAL VANE DIFFUSER ON THE PERFORMANCE AND FLOW FIELD OF A CENTRIFUGAL COMPRESSOR

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## Abstract

*The paper presents experimental results on the effect of inlet vane angle on the performance and flow field of Partial Vane Diffuser (PVD) of a low speed centrifugal compressor. Performance tests are conducted for eight configurations of PVDs. From these tests, an optimum configuration with 5° increase in inlet angle of partial diffuser vanes on shroud (PVDHS5) is selected for further measurements i.e. static pressure on the diffuser hub and shroud and diffuser passage flow field at four flow coefficients. From passage flow measurements flow parameters are obtained within the diffuser flow passage. Flow parameters are axially averaged and their contours are presented. Radial variation of these flow parameters is also presented. PVDHS5 gives 2.3% increase in peak energy coefficient and 4.9% increase in efficiency compared to that of vane less diffuser. The flow at the exit of PVDHS5 is more uniform.*

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