**FLOW CONTROL IN SERPENTINE INLET DUCT USING VORTEX GENERATOR JETS**

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**Abstract**

*The objective of the present research is to study the effectiveness of steady and pulsed vortex generator jets in reducing inlet flow distortion and in improving pressure recovery by effective secondary flow control in uniform inflow serpentine duct diffuser. The measurements were carried out at a test Reynolds number of 6.5 x 105 based on the diffuser inlet width. Serpentine duct diffuser consisted of two main portions, namely, a square to circular constant area transition duct followed by a circular diffusing duct. Investigations show that the flow in the serpentine diffusing duct suffers from stall on the inner wall and consequently the outflow at AIP has considerable flow distortion due to the combined effect of secondary flow and the inner wall stall. It is observed that the use of vortex generator jets, both in steady and pulsed modes, improve the performance substantially. The number of jets, location of jets, velocity ratios and the pulse frequency are some of the variables that are studied. The results obtained so far suggest that use of pulsed jet not only gives better performance but also reduces the amount of air that is needed to be injected through the jets in comparison to steady jets for similar velocity ratios.*

***Keywords:*** *Serpentine duct, flow control, pulse jets*

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