THE EFFECT OF OBSTRUCTION ON PRESSURE DISTRIBUTION IN THE DIVERGENCE RIBS DUCT AN EXPERIMENTAL STUDY

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ABSTRACT

An experimental study is carried out of two-phase flow phenomena around obstruction in a divergence rib rectangular duct for two opening divergence angles. The experiments are performed in the duct with the water-air flow with various water and air discharges. The purpose of these experiments to visualize the two phase flow phenomena in addition to studying the effect of the pressure difference through the divergence with the presence of the obstruction. All the experimental data in this study are obtained by utilizing a pressure sensor and visualized by a video camera for different water discharges (5, 10, 15 l/min), different air discharges (8.33, 10.83, 13.33 l/min) and the opening angles are 10 and 15 degree. The results show that when the opening divergence angle increases from (10 to 15) at constant air and water discharge, the pressure difference through the inlet and the outlet of the divergence ribs rectangular duct section decreases by 11%.

KEYWORDS: Two-Phase Flow, Obstruction & Divergence Ribs Rectangular Duct

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