

Performance Evaluation of Water Jet Pump for Nozzle to Throat Area Ratios on Suction Lift

Abstract

The experiment was about to study of water jet pumps with different diameters and nozzle-to-throat area ratios. Most experimental studies on water jet pumps mainly carried out to assess the maximum efficiency. But maximum efficiency occurs when the suction lift is relatively small for a given head loss through the pump, which implies, when the suction flow rate is maximum. However, suction lift is inversely proportional to flow rate. But in the field of application there are many cases (such as drainage, dredging, well-pumping and other systems) where suction lift is more important factor than any other for water jet pumps, which gives importance to the assessment of depending factor of suction lift of water jet pumps. Six different jet pumps of two different nominal diameter each of three different nozzle to throat area ratio were made to carry out this experiment. The results revealed that the nozzle-to-throat area ratio was an important parameter to characterize the suction lift of the jet pumps, but nominal diameter had a negligible play role.