

AN ABSTRACT OF A THESIS

PERFORMANCE TESTING AND MATHEMATICAL
MODELLING OF A FLUIDIC PUMP

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Master of Science in Chemical Engineering

The efficiency of a fluidic pump was tested under varying loads using three liquids of different viscosities in three piping systems of varying complexity. Pure water and two solutions of carboxymethylcellulose (CMC) in water were used to determine the effect of viscosity changes on the efficiency of the pump. The viscosity of the three liquids ranged from 1.0 to 85.9cP.

The results of the test were used to modify an existing predictive model to allow for changes in fluid viscosity and system complexity. Modifications to the model improved the timeline predictions, succeeded in reducing the error of flow rate predictions as much as 26 percent, and reduced the model user time substantially. It was concluded that the behavioral trends of the fluidic pump were very predictable in all the circumstances studied.

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MODELLING OF A FLUIDIC PUMP

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CERTIFICATE OF APPROVAL OF THESIS

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