ABSTRACT

The micro-pump is a device that can provide a precise and controllable of liquid. In this study, we analyze originally dimension of piezoelectric actuator by commercial software of finite element method (ANSYS). By analysis result improvement design, and compare with measure result. We use the stainless steel etching to make structure of micro-pump and electroform a valve structure that have four beam. Bond these structure and test its performance. This method not only cost down but also enhance yield rate.

The effects of different valve thickness, frequency and back pressure on the flow rate of the micro-pump are investigated. The thickness of valve is 20μm have maximum flow rate is 1.82 ml/min when it is driven by a sin wave of 120Vpp, 160Hz. The maximum attainable back pressure is 32kPa.
REFERENCES


