

Jeerawat Pokanit 2009: Design and Testing of A Scroll Pump. Master of Engineering (Mechanical Engineering), Major Field: Mechanical Engineering, Department of Mechanical Engineering. Thesis Advisor: Assistant Professor Phichai Kritmaitree, Ph.D. 88 pages.

This research presents design and testing of a scroll pump. The fixed and orbiting scrolls mathematical models were used in design and construction of the scroll pump. The coordinates of the curves along the fixed and orbiting scroll wraps were calculated by SCILAB-5.1 program. The scroll pump was modeled by Solid Work program and constructed by CNC machine. The testing facilities were designed and constructed under the Japanese Industrial Standards (JIS B 8301, 1990).

The testing was conducted to find relationships of flow rate, pressure, and efficiency of scroll pump and its speed. The tested speed of the motor was 675, 750, 825, 900, 975, 1050 rpm. The results showed that the flow rate, pressure, and efficiency of scroll pump were increase with the speed of the motor. The maximum values of the flow rate, pressure, and efficiency were 195 l/min, 9 psig, and 22.66 percent, respectively. These values were occurred at the maximum speed of 1050 rpm. The water leakage and friction loss between orbiting scroll and casing were the major reasons of the low performance of the scroll pump.

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