Development and characterization of a rig for modelling an artificial heart pump

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Abstrak

Heart is one of the most vital organs in human body. Without it, blood is impossible to be transferred to a 11 body. Nowadays, there are many factors that can cause heart fail, and the cases of heart fails are increasing. In some of these cases, the heart is permanently fails, so that the replacement or support for the heart is needed. While the heart donors is lagging behind the rate needed, then Total Artificial Heart is needed. Development of TAH has grown rapidly, so many TAH product are in market. Some of them have already implanted in human body.

The original pump developed by Hoang Tran (1996) was used as based to which this scaled up pump was modeled after. The rig testing that was used by Daniel Timms was used as the starting point to develop the new rig.

The new rig was designed with better features the rig before. Measurement devices, especially for head pressure was improved by using electronic pressure transducer. This new rig was not using motor from Daniel Timms Rig, DC motor that is safer and easy to control was used. To control this Motor, power supply with variable voltage option was used.

Pump Characteristic Graph was measured by the pump performance testing. From this testing, the efficiency from this pump and system can be measured based on the voltage and current that was used by motor.