

ABSTRACT

Thermoelectric cooler (TEC) is a device that requires DC current to produce the heat pump phenomenon. When given a voltage source there will be a temperature difference (ΔT) on the second side of the TEC, the phenomenon is called the peltier effect. In this study, a cooling system was made by using TEC-12706 to cool the air inside the cooler as much as 1.5 kg and vary the flow rate out of the pump by 1LPM, 2LPM, and 3LPM. The target temperature of the air to be cooled is 20°C at each flow rate variation. Retrieval of temperature data using a K-type thermocouple connected to the HE804 data logger. During the experiment, the data collection was carried out in real time and then the time was shared every 10 minutes until the temperature reached 20°C. Data sharing is done so that changes in temperature can be seen clearly and easily done. Results from temperature changes. Can be compared with calculations. From the test results up to 20°C obtained from reaching 20°C, at 1 LPM, 2 LPM, and 3 LPM takes 70 minutes, 110 minutes, and 180 minutes. Based on calculations on 1 LPM, 2 LPM, and 3 LPM the time required is 11.88 minutes, 25.33 minutes, and 39.79 minutes.

Keywords: Thermoelectric cooler (TEC), flow rate, temperature, and Cooling Box.