ABSTRACT

Flat-plate solar collector (FPC) is one of the solar panel applications. FPC can capture solar radiation towards the absorber plat with a collector area depends solar radiation to a focal point. Model FPC consists of a capture which is made from copper plate, pipe receiver is made from copper. The purpose of this study is analyzing the effect of flow rate fluid and the receiver to thermal efficiency of the collector. Design thermal collectors made with a width of 0.59 m, length 0.87 m, angle of 15^{o} with of perpendicular to the sun. The test using the receiver pipe with a full-length 5.46 m and the fluid flow rate varied from 0.1 liter/min to 0.5 liters/min. The results obtained during 5 hours of testing on the pipe and a flow rate of 0.3 liters/min produces efficiency thermal 85%. From all the test showed that the difference of temperature input and output on the receiver pipe, and the flow rate of fluid can affect the thermal efficiency of FPC.

***Keyword** : Flat-plate solar collector, flow rate variation, thermal efficiency.*