

ABSTRACT

Renewable technology lately is very warm discussed, one of them is solar heat collector parabolic trough type. This type of collector is a solar heat collection that can focus sunlight on a focal point of the parabola. The purpose of this study is for analyzing the tracking system and thermal efficiency. The system consists of a heat collector using stainless steel plate with a width of 0.9 m, length 1.83 m, a focal distance 0.225 m with rim angle 90° , stainless steel pipe with a diameter of 0.019 m is made for receiver, and tracking system using a parabolic actuator 12 VDC and sensor LDR. The test showed that imprecision between angle of the collector and the sun close to 12° with average 7° . Testing of thermal collector for 2 hours and 5 minutes with a total of Q_{absorb} 111.7 kJ and a total of Q_{accept} 2737.6 kJ for thermal collector without a tracking systems. Therefore the total efficiency thermal is 4.1%. Testing for thermal collector using tracking system, a total of Q_{absorb} 244.3 kJ and a total of Q_{accept} 3503 kJ so that the total efficiency thermal is 6.97%.

Keywords : *collector, parabolic trough, tracking system, parabolic actuator, efficiency thermal.*