THE EFFECT OF SOLAR RADIATION INTENSITY ON THE THERMAL COLLECTOR EFFICIENCY IN PARALLEL SOLAR WATER HEATER

Written by :

Arif Widodo

NIM : 13040012

Supervisor I : Benedictus Mardwianta, S.T., M.T.

Supervisor II : Nurfi Ahmadi, S.T., M.Eng.

ABSTRACT

The potential of solar energy in Indonesia as a water heater is high because Indonesia is located in the equator. Solar energy is remarkable because it is not polutive, polutive continuous, and abundant.

For developing countries, funding is a significant obstacle. Therefore, the utilization of solar energy can be started from the simple thing that is utilizing the water heater type parallel for the use of water for household purposes.

Testing in this research was done by making a solar water heater type parallel with collector size of 160 cm x 76 cm with material isolator styrofoam plated with black painted aluminium. In the implementation of the test, the data were taken at 10.00 am up to 3.00 pm. The research was conducted at STT Adisutjipto.

Analysis and discussion indicated that the lowest intensity of solar radiation was 237 W/m² at 3.00 pm with the thermal efficiency of 66.2%, and the highest solar radiation intensity was 1249 W/m² at 12:50 pm with the thermal efficiency of 69%.

Keywords: *energy, solar water heater parallel type, thermal efficiency*

Approved by:

Dewanti Ratna Pertiwi, S.Pd., M.Hum.