

ABSTRACT

The use of Indonesian solar energy is very important to use. One of the uses is to use flat plate solar collectors for solar water heaters or solar water heaters (SWH). SWH has a direct and no circulation system. By measuring the radiation radiation value, air mass, and temperature change. Variations carried out in this study were variations in average variation at 688,7 W / m², 391,54 W/m², and 129,04 W/m², variations in water mass at 3 kg, 4 kg, and 5 kg, variations in the use of heat exchangers (heat exchanger)) and not. Based on the testing using these variations, the efficiency value in the direct circulation system is 74,55% with a water mass of 5 kg and an intensity of 129,04 W/ m². Whereas in the indirect circulation system the highest efficiency value is 40,36% with a mass of 5 kg and the intensity of 129,04 W/ m².

Keywords: solar water heater, direct circulation, indirect circulation, thermal efficiency