

ABSTRACT

The cooling machine is a very important tool and has enormous benefits for human life today, can preserve food longer than it should and can increase comfort in building spaces, including for humans who live in tropical regions that have higher environmental temperatures than other regions. This research has a topic in the form of the development of a cooling system in a steam compression refrigeration system which is expected to accelerate the cooling process that occurs in the cooling system later. The addition of an extra fan to the condenser which is a component of the heat exchanger during the cycle runs an extra fan able to help exchange heat to the environment, then the extra fan will be changed its speed by changing the output voltage generated using a dimmer. Dimmers contained in the extra fan will help in research to find out the differences that will occur if the output voltage generated will be changed. Extra fan will speed up the cooling process in the cooling system. At the time of data retrieval the results obtained in the form of temperature changes in each condition with the temperature change in the Cooler Box obtained ($\Delta T1$) of 14.9°C using Extra Fan speed of 3.42 m / s while in the second condition ($\Delta T2$) of 9.6°C using Extra Fan speed of 1.81 m / s and in the third condition ($\Delta T3$) of 3.7°C with the condition of the Extra Fan turned off. With these results it can be proven that the addition of an Extra Fan to the condenser can affect changes in Temperature in the Cooler Box.

Keywords: *Extra Fan, Dimmer, Cooling system.*