

ABSTRACT

Commercial buildings spend amounts of energy only for air conditioning/HVAC systems (Heating, Ventilation and Air Conditioning). Therefore we need a way to save energy on the system. One of system that is widely used in daily life is the Vapor Compression Refrigeration System. One of way to increase efficiency is to use better heat conduction such as water as an object that can reduce additional temperatures[4]. In this study, an analysis effect of voltage for capacity of releases heat condenser, cooling capacity evaporator and efficiency in vapor compression refrigeration system. In order to be measured, this system was made using water as an object used by a condenser or evaporator for addition, then the pump is circulated to the heat exchanger and returned to a different reservoir. The results of this study, there is voltage increase on fan cooler of 4.5 volt, 6.5 volt, 8.5 volt, 10.5 volt and 11.9 volt causing an increase in capacity of releases heat condenser each of 0,043466418 KW, 0,60852985 KW, 0,104319402 KW, 0,104319402 KW and 0,1130127 KW which had an impact on cooling capacity each of 0,052159701 KW, 0,069546268 KW, 0,104319402 KW, 0,113012686 KW and 0,1130127 KW. Each input of voltage on fan cooler was increased, so the efficiency of the Vapor Compression Refrigeration System will increase each of 1.19%, 1.28%, 1.45%, 1.46% and 1.61%. This happens because of voltage increase which causes the cooling fan to spin faster so that the temperature of the air coming out of the heat exchanger was cooler.

Keywords: *Saving Energy, SRKU, Refrigeration System, Efficiency.*