

EXPERIMENTATION AND PERFORMANCE EVALUATION OF HEAT RECOVERY FROM DOMESTIC REFRIGERATOR

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ABSTRACT

A refrigerator is a device, which is used to maintain a body at a temperature, below that of surrounding. In order to maintain lower temperature continuously, refrigerator must operate on a cycle. Hence, heat must be made to flow from a body at lower temperature to the surroundings, which are at higher temperature. As we have moved into twenty first century, the rise is related with global warming and its effects on the universe. We all are struggling with the environment change, and our desire is energy recycling for the minimum energy waste. We all are trying to recover the waste energy, by recycling and reducing the carbon footprints. Our main aim to increase energy efficiency of refrigerator by waste heat recovery, at the same time, the waste heat can be used in other domestic utility like heating water in winter season and other purposes (cleaning cloths, equipment, utensils). Heat recovered from water cooled condenser is 4.15 times more than the air cooled condenser and in terms of percentage; we recover the heat energy 315.5 % more than the air cooled condenser. In this experiment, the heat recovered using two condensers is up to 123.61 Watts, and it can be improved by optimizing the size of insulated box and using proper insulation material.

KEYWORDS: Heat Recovery, Vapour Compression System, Insulation Box, Condenser, Throttle Valve

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