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The Effect of Water Impact on the Refrigerant Pipeline between Compressor and Condenser on COP and Efficiency of Cooling Machine

Wibowo Kusbandono^{1,*}

¹*Department of Mechanical Engineering, Faculty of Science and Technology, Sanata Dharma University, Yogyakarta, Indonesia*

^{*}*Corresponding Author: bowo@usd.ac.id*

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Abstract

The purpose of this research is (a) to design and assemble a steam compression cycle cooling machine using the main components on the market (b) to obtain the characteristics of the cooling engine, which includes the Coefficient of Performance (COP) and the efficiency of the cooling engine. The research was conducted experimentally in the laboratory. The refrigeration machine works by using a steam compression cycle, with the main components: a compressor, an evaporator, a capillary tube and a condenser. The compressor power is 1/6 PK, while the other main components are adjusted to the size of the compressor power. The refrigerant used is R134a. Variations of the research were carried out on the condition of the refrigerant pipe located between the compressor and condenser: (a) without being submerged in water (b) submerged in 0.50 liters of water and (c) submerged in 0.75 liters of water. The results of the study provide information that the water immersion in the refrigerant pipe which is located between the compressor and condenser affects the COP value and the efficiency of the refrigeration machine. Consecutively (1)

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