

عنوان مقاله:

Experimental Investigation of Single Evaporator Cooling System Using Two Capillary Tubes and Microchannel Coil Technology

محل انتشار:

سی و یکمین همایش سالانه بین المللی مهندسی مکانیک ایران و نهمین همایش صنعت نیروگاهی ایران (سال: 1402)

تعداد صفحات اصل مقاله: 6

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خلاصه مقاله:

In this article, we will deal with the experimental investigation of the vapor compression refrigeration system (VCRs) in which two capillary tubes with different dimensions are used. We will also compare the performance of the new single evaporator system with two capillary tubes with the single evaporator system with one capillary tube. The single evaporator refrigeration system with two capillary tubes increases energy efficiency. The equipment used in the VCRs is a variable speed compressor, microchannel condenser (MCC), dryer, 3-way valve, and freezer compartment evaporator (FCE). In this model, the evaporator is not used in the fresh food compartment (FFC) of the refrigerator-freezer, and the cold enters the fresh food compartment through an open/ closed damper. R 600a refrigerant is used in the condensation refrigeration system. The VCRs is placed on the side-by-side refrigerator-freezer. The refrigerator-freezer has been tested and checked in a laboratory with an ambient temperature of 25 °C, according to national and international standards (IEC 62552 & INSO 14577-1st edition). The innovation of the current system is the use of two capillary tubes at the evaporator inlet and MC-C technology. If the current system is used, the energy efficiency index will decrease by 36%. The energy index is less than 22, and (refrigerator volume: 514 liters and freezer volume: 292 liters) energy consumption efficiency group will be A.

کلمات کلیدی:

VCRs, Capillary tube, MC-C, Energy consumption

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