WINTER OPERATION MODE OF AN AIR CONDITIONING SYSTEM USING A VAPOR COMPRESSION REFRIGERATION CYCLE WITH A CAPILLARY TUBE AS A THROTTLING DEVICE

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Abstract

We specify a problem related to refrigerators operating in winter. We consider operation of a vapour compression refrigerator featuring a classic throttling device, a capillary tube. We supply the results obtained during an experiment using the capillary tube when the ambient temperature was below –35 degrees centigrade. We state the primary disadvantages of the refrigeration method under study. We provide suggestions for employing capillary throttling devices

Keywords

Air conditioning system, refrigerator, capillary tube, throttling device, winter operation mode of an air conditioning system

References

[1] Sheremet'yev S.S., Voronov V.A., Lavrov N.A., Zhurlova P.Yu. [On implementing Carnot cycle in refrigerating and cryogenic engineering]. *Nauka segodnya: real'nost' i perspektivy. Materialy mezhdunarodnoy nauchno-prakticheskoy konferentsii* [Science today: reality and prospects. Proc. Int. Sci.-Practice Conf.]. Vologda: OOO "Marker", 2016, pp. 47–48. (in Russ.)

[2] Sheremet'yev S.S., Shirshikov A.O, Lavrov N.A. The experimental setup for the operation of small refrigerator control system research. *Inzhenernyy zhurnal: nauka i innovatsii* [Engineering Journal: Science and Innovation], 2016, no. 11. URL: http://engjournal.ru/catalog/pmce/mdpr/1548.html (in Russ.) DOI: 10.18698/2308-6033-2016-11-1548

[3] Shishov V.V., Revkov A.V. K voprosu ob «adaptatsii» konditsionerov k usloviyam Rossiyskogo klimata [On problem of air conditioner "adaptation" to the Russian climate conditions]. Old.Farmina: website. URL: http://old.farmina.ru/gl_ing/stat_1.php (accessed 14.04.2017) (in Russ.)

[4] Garanov S.A., Voronov V.A., Zabolotnyy D.Yu., Zhurlova P.Yu. Vapor compression heat pump stand. *Inzhenernyy zhurnal: nauka i innovatsii* [Engineering Journal: Science and Innovation], 2016, no. 1. URL: http://engjournal.ru/catalog/pmce/vct/1460.html (in Russ.) DOI: 10.18698/2308-6033-2016-1-1460

[5] Voronov V.A., Zhurlova P.Yu., Zabolotnyy D.Yu., Sheremet'yev S.S. Selecting refrigerant blends for vapour-compression refrigeration systems and heat pumps. *Politekhnicheskiy molodezhnyy zhurnal* [Politechnical student journal], 2016, no. 3. URL: http://ptsj.ru/catalog/pmc/mdpr/23.html (in Russ.) DOI: 10.18698/2541-8009-2016-3-23

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