
ENERGY EFFICIENT SOLUTIONS OF SERVER ROOMS AIR CONDITIONING IN CLIMATIC CONDITIONS OF THE MOSCOW REGION

A.I. Evushkin

S.S. Sheremet'ev

artem.evushkin@gmail.com

trmlvnos@gmail.com

Bauman Moscow State Technical University, Moscow, Russian Federation

Abstract

The article deals with the basic cooling schemes for server rooms and existing solutions, describes their advantages and disadvantages, as well as the main features of each cooling method, and also gives the classification of cooling methods. Particular attention is paid to cooling in the winter. We focus on the basic problems arising at cooling the server rooms, and ways of their solution on an example of existing systems of air conditioning. We carried out a comparative analysis of known cooling schemes and identified the most energy efficient schemes, which make it possible to significantly reduce the loss of cooling capacity

Keywords

Air conditioning system, mechanical refrigerating unit, free cooling, data processing center

© Bauman Moscow State Technical University, 2017

References

- [1] Nastennye konditsionery Mitsubishi [Wall mounted air conditioners Mitsubishi]. Mitsubishi: website. URL: <http://www.mitsubishi-climate.ru/Nastennye-konditsionery.htm> (accessed 16.11.2016) (in Russ.).
- [2] Polikarpov E. Vysokotochnye sistemy konditsionirovaniya [High-precision air-conditioning system]. Moscow, Media Tekhnolodzhi Publ., 2013. 82 p. (in Russ.).
- [3] Emerson. Katalog produktsii [Emerson. Product catalog]. Emersonclimat: website. URL: <http://www.emersonclimate.com> (accessed 20.11.2016).
- [4] Kokorin O.Ya., Levin I.A. The use of turbo-cooling machines in the modes of «free cooling». *Kholodil'naya tekhnika* [Kholodilnaya Tekhnika], 2005, no. 3, pp. 6–9 (in Russ.).
- [5] Shneider Electric. Katalog produktsii [Shneider Electric. Product catalog]. Schneider-electric: website. URL: <http://www.schneider-electric.ru> (accessed 20.11.2016) (in Russ.).
- [6] Karpov A.A. Cistemy svobodnogo kholoda [Free cold]. AERMEK: website. URL: http://www.aermec.ru/Article_85.html (accessed 20.11.2016) (in Russ.).
- [7] Polupromyshlennye konditsionery [Semi-industrial air conditioners]. Carrier: website. URL: <http://carrier-aircon.ru/catalog/industrial/> (accessed 20.11.2016) (in Russ.).
- [8] Khigbi K. Modern approaches to cooling data centers. *Zhurnal setevykh resheniy/LAN* [Network solutions magazine/LAN], 2014, no. 2. URL: <https://www.osp.ru/lan/2014/02/13039883/> (accessed 20.11.2016) (in Russ.).
- [9] Garnett P., King Dzh. Server blade for performing load balancing functions. Pat. US 7032037 B2, no. 6762934. 2002.

Evushkin A.I. — student of the Department of Refrigeration and Cryogenic Equipment, Systems of Air Conditioning and Life Support, Bauman Moscow State Technical University, Moscow, Russian Federation.

Sheremet'ev S.S. — Assistant and Master's Degree student of the Department of Refrigeration and Cryogenic Equipment, Systems of Air Conditioning and Life Support, Bauman Moscow State Technical University, Moscow, Russian Federation.

Scientific advisor — N.A. Lavrov, Dr. Sc. (Eng.), Professor of the Department of Refrigeration and Cryogenic Equipment, Systems of Air Conditioning and Life Support, Bauman Moscow State Technical University, Moscow, Russian Federation.