عنوان مقاله:

Numerical analysis and optimization of variable refrigeration flow systems

محل انتشار:

نویسندگان:

Alireza Ehsani - *Masters' student, Department of mechanical engineering, Faculty of Engineering,University of Science and Technology (IUST), Tehran, Iran*

Habibollah akbari. - *Assistant professor, Department of mechanical engineering, Faculty of Engineering,University of Science and Technology (IUST), Tehran, Iran*

خلاصه مقاله:

In recent years, due to the growth of energy consumption in the world and due to the production of greenhouse gases, global warming has occurred. Therefore, the energy consumed in the cooling sector of buildings has increased significantly. However, the increase in refrigeration standards used in buildings has also been effective. Therefore, researchers are looking for new methods for air conditioning systems used in buildings that, in addition to meeting the new and strict standards of air conditioning, have less energy consumption. In this regard, one of the newly introduced methods is the use of variable flow refrigerant air conditioning systems, which has been investigated in this research. These systems can be considered the new generation of ductless multi-piece systems and one of the most efficient current air conditioning systems in the world, which allows more indoor units to be connected to each outdoor unit. Also, these systems have the possibility of simultaneous cooling and heating as well as heat recovery, thus saving energy. In this research, a typical air conditioning system has been investigated from the point of view of energy and exergy analysis. Also, for different refrigerants used in the system, the performance coefficient, exergy efficiency and exergy loss of the system have been investigated. The results show that if R٢٢ refrigerant is used, the highest performance coefficient and exergy efficiency are obtained for the system. Also, the highest amount of exergy loss is related to the compressor, then the condenser, and then the evaporator. The highest recorded COP coefficient for the system is ۴.۱.

کلمات کلیدی:

numerical analysis, variable refrigeration flow system, ventilation system, exergy analysis, exergy destruction

لینک ثابت مقاله در پایگاه سیویلیکا:

https://civilica.com/doc/1875888