عنوان مقاله:

Effects of Geometrical Parameters on Exergy of Cold Water Storage Tanks

محل انتشار:

دومین کنفرانس بین المللی گرمایش، سرمایش، و تهویه مطبوع (سال: 1389)

تعداد صفحات اصل مقاله: 5

نویسندگان:

Moien Farmahini - *Department of Mechanical Engineering, Tarbiat Modares University*

Ghassem Heidarinejad - *Department of Mechanical Engineering, Tarbiat Modares University*

Mehdi Maerefat - *Department of Mechanical Engineering, Tarbiat Modares University*

Shahram Delfani - *Building and Housing Research Center (BHRC), Building Installations Department*

خلاصه مقاله:

Thermal stratification is applied in the field of energy storage to augment efficiency of energy use. Research on energy storages has revealed that the thermal performance or energy saving of a water storage tank can be increased by maximizing the level of thermalstratification within the storage tank. In this paper, impacts of geometrical parameters of tanks on the thermal stratification within a cold storage tank are analyzed. Seven two-dimensional models have been numerically simulated by using the computational fluiddynamics program, Fluent, with realistic boundary and initial conditions applied. The level of thermal stratification in each model has been quantified using exergy analyses. The results show increasing the tanks aspect ratio of height to width, decreasing inlet/outletdiameter, and moving the inlet/outlet position to the outer extremities of the tank all result in increasing .levels of thermal stratification

کلمات کلیدی:

Cold storage tanks, thermal stratification,exergy analysis, CFD