عنوان مقاله:

Experimental Investigation of the Effect of Rotary Ribbed on Thermal Performance of Double -Tube Heat Exchanger

محل انتشار:

ششمین کنفرانس ملی پژوهش های کاربردی در مهندسی برق، مکانیک و مکاترونیک (سال: 1399)

تعداد صفحات اصل مقاله: 8

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خلاصه مقاله:

In this experimental study, in order to better understand the effect of internal tube geometry on the thermal performance of a two-pipe heat exchanger, a rotary Ribbed is created on the inner tube. The overall heat transfer coefficient, efficiency, and number of heat transfer units (NTU) have been evaluated as important features in the heat exchanger performance analysis. The rotational Ribbed created in several ways improve the thermal parameters. These Rotary Ribbed produce secondary flows in the shell side, the presence of these secondary rotational currents reduces the thickness of the thermal boundary layer, thereby improving the performance of the heat exchanger. The presence of Rotary Ribbed also increases the turbulence level and improves the mixing of fluid flow and thus improves heat transfer. The method used has led to an increase in the number of heat transfer units (NTU), which causes the present-day heat exchanger to transfer more heat between two fluid flows, hence the use of rotary Ribbed can be used as a method To compress the dimensions of the heat exchanger. The results show that with the step reduction, ie, the more the angle of the Rotary Ribbed moves from the direction of the flow of fluid to the perpendicular .to the flow of the fluid, the heat transfer rate will increase, but the pressure drop will also be higher

کلمات کلیدی:

Double – Tube Heat Exchanger, Rotary Ribbed , Total heat transfer coefficient , effectiveness