Abstract

This design which was made is a shell and tube heat exchanger heat exchanger. The calculation of the dimensions of the heat exchanger aims to determine the quality of the heat exchanger based on the overall heat transfer coefficient, impurity factor, and the pressure drop that will occur. The heat exchanger that is made and designed is a shell and tube type heat exchanger 1 (one) pass shell and 1 (one) pass tube made of stainless steel 304 and copper with fluid flow in the form of air and water. The analysis results obtained that the heat exchanger that is designed already meets the requirements of the effectiveness coefficient of the baffle, understands the factors that exist in the shell and tube type of heat exchanger and understands the factors that affect efficiency and effectiveness. Calculations using the LMTD method, obtained that receive heat released has a large unity with time Q, then the heat received by cold fluid is Q = 4565.16 W, LMTD produced also shows the number 20, with a proven factor (F) is 1. Comparison obtained from the calculation of the tube side and shell side is the value of Re generated is greater than the value of Re on the shell side.

Keywords: Heat Exchanger, Simulation,