Thesis Title	Heat Exchanger Selection Criteria for Industrial Waste Heat Recovery
Thesis Credits	12
Candidate	Mr. Supoj Munintrangkul
Supervisor	Dr. Jirawan Tiansuwan
Degree of Study	Master of Engineering
Department	Thermal Technology
Academic Year	2001

Abstract

This study is to launch the criteria for selection the heat exchangers which are shell and tube, and plate type, when the exchanging fluid pairs are water-water and steam-water. The heat exchanger effectiveness, irreversibilities and cost of the heat exchangers are the parameters considered which are modified to be heat rate per temperature difference (log-mean) and the cost per heat rate. When the heat rate per temperature difference is in the range of 4 – 14 kW/^{o}C for the water-water and that of 5 – 30 kW/^{o}C for steam-water, the shell and tube heat exchanger show better benefit than the plate type while the irreversiblilities from both are nearly the same. For steam-water with the range of 35 – 80 kW/^{o}C, the plate heat exchanger gives more advantage. The irreversibilities of both heat exchangers slightly different.

For a selected food-cannery factory that has various heat exchanger loads of water-water which are 2.86, 1.15, 1.69, 1.64 and 0.62 kW/^{o}C, it could be found that the shell and tube type is more appropriate because of its lower cost per area and cost per heat rate.

Keywords: Heat Exchanger cost /criteria/Irreversibilities