

ABSTRAK

Pada penelitian ini telah dilakukan studi pengaruh perubahan pitch pada coiled tube terhadap nilai heat transfer dan pressure drop yang terjadi pada helical heat exchanger dengan type counter flow. Pengukuran dilakukan pada 3 variasi pitch dan 2 diameter pipa yang digunakan sebagai tube. Pengumpulan data meliputi pengukuran suhu inlet dan outlet pada tube maupun shell, serta tekanan air yang mengalir pada sisi tube dengan variasi laju aliran air. Nusselt number sebagai nilai heat transfer dan total pressure drop meningkat sebanding dengan laju aliran massa air dan berbanding terbalik dengan pertambahan panjang pitch pada coiled tube.

kata kunci : helical heat exchanger, pitch, koefisien heat transfer, pressure drop.

ABSTRACT

In this research had studied the influences of pitch coiled tube toward the value of heat transfer coefficient and the pressure drop on the counter flow type of helical heat exchanger. Three heat exchangers with different coil pitches and curvature ratios were tested. The required parameters like inlet and outlet temperatures of tube-side and shell-side, flow rate, inlet and outlet pressure were measured using appropriate instruments. Decreasing pitch coiled and increasing the flow rate will increase the Nusselt number as a value of heat transfer and the pressure drop.

Keyword : helical heat exchanger, pitch, coefficient of heat transfer, pressure drop