

Finned Tube Heat Exchanger Design

Thermal Design:

The design of FTHE are made based on

1. FTHEs are subject to a wide variety of constantly changing climatic conditions which pose problems of control not encountered with shell and tube exchangers.
2. Then, We will work on economic balance between the cost of electrical power for the fans and the initial capital expenditure for the equipment. A decision made as to what ambient air temperature should be used for design. Air flow rate and exhaust temperature are initially unknown and can be varied in the design stage by varying the number of tube rows and thus varying the face area. The basic heat transfer relationships that apply to shell and tube exchangers also apply to FTHEs.

The fundamental relation is the Fourier equation:

Also, $Q = m c_p dT$ Relation is used for Other Assumptions.

Then, 1. Fan Selection,

3. Drive Required for Fan. (Horse power Requirement).