

传递现象

锯齿翅片的传热与阻力性能试验

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摘要 在风洞试验台上对16种不同结构参数的板翅换热器中使用锯齿翅片进行了传热和流动阻力性能试验,分析比较了翅片间距和翅片长度对其表面对流传热系数和空气阻力性能的影响。同时通过对16种翅片的244个试验数据点进行多元回归和F显著性检验,获得了j因子和f因子的经验关联式。在Re=500~7500范围内,经验关联式的最大误差范围为±10%,绝对平均偏差分别为4.2%和5.3%。

关键词 [传热](#) [锯齿翅片](#) [关联式](#)

分类号

Test of the flow and heat transfer characteristics for offset strip fin

Abstract

Experimental studies on the air-side heat transfer and pressure drop characteristics for 16 types offset strip fin heat exchanger and flat tube heat exchangers were performed with such parameters as fin space s , fin height h , fin thickness t , fin length l and flow length d . A series of tests were conducted at air side Reynolds number of 500—7500, and constant tube-side water flow rate of 2.5 m³·h⁻¹. The air side thermal performance data were analyzed by using the effectiveness-NTU method. The heat transfer coefficients and pressure drop data for different fin space s and fin length l were reported in terms of frontal air velocity. The general correlations for j and f factors were derived by regression analysis and F significance test, and the correlations had a RMS error of ±10%. The absolute mean deviations for the j and f factor correlations were 4.2% and 5.3% respectively.

Key words [heat transfer](#) [offset strip fin](#) [correlation](#)

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