

传递现象

套片式换热器设计计算和CAD绘图软件的研制

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摘要

结合国内生产企业实际研制了套片式换热器的设计计算和CAD绘图软件。该软件将套片式换热器的性能设计计算、结构和强度计算、生成产品报价和绘制CAD结构图功能结合在一起,实现了一体化的设计流程。提供了一条全新的性能设计计算思路,从设定限制条件预先筛选、优化搜索策略等方面来极大减少计算量,同时保证可以计算出满足各项热力性能指标和离散设计参数的全部方案,对方案挑选、排序后,进行下一步的结构和强度计算;将结构计算和强度计算实现轻度耦合,使得设计结果可以灵活地满足不同的强度标准;将CAD绘图模块需要的参数分为4部分,防止了在CAD绘图模块调整零部件结构参数时,影响其强度性能。

关键词

[套片式换热器](#) [设计计算软件](#) [CAD绘图](#)

分类号

Design calculation and CAD system of fin-and-tube heat exchanger

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Abstract

The design calculation and CAD system for fin-and-tube heat exchanger was developed. This software, suitable for the industrial application of domestic heat exchanger manufacturers, provides an all-in-one service for the designers integrated functions of thermal performance design, sizing and strength design calculation, costing calculation and a CAD system. In the performance design module, some measures such as pre-screening and optimization of the search strategy were selected to reduce the calculation times, and all the solutions meeting the thermal indices and discrete design parameters can be obtained at the same time. The sizing calculation and strength design were slightly coupled, which makes the results meet different strength criteria flexibly. The structure parameters passed to the CAD system were divided into four parts, through which the strength of the components would not be influenced with the adjustment of parameters in the CAD system.

Key words

[fin-and-tube heat exchanger](#) [design software](#) [CAD system](#)

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