

传递现象

## 基于遗传算法的翅片管换热器管路优化方法

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**摘要** 通过设计有针对性的遗传编码方法和遗传操作算子, 提出了一种实用有效的换热器管路连接优化方法。在满足换热器的换热能力和实际制造工艺的约束条件下, 以换热器管路连接最短为优化目标对一个实际翅片管换热器进行了优化研究。结果表明, 所设计的优化算法能够在5 h内收敛, 优化后的连接管长度缩短25%。

**关键词** [翅片管换热器](#) [管路连接](#) [遗传算法](#) [优化](#)

分类号

## Optimization approach for tube circuit of fin-and-tube heat exchanger based on genetic algorithm

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### Abstract

A novel tube circuit optimization approach for fin-and-tube heat exchanger was presented by developing a particular genetic coding method and genetic operators. A case study was performed on a practical heat exchanger. The optimization objective of the case was to obtain the shortest joint tube length of the tube circuit with the constraint conditions of satisfying the designed heat exchange capacity and the convenience of manufacture. Optimization result showed that the designed algorithm could converge within 5 h and the total joint tube length decreased by 25% after optimization.

**Key words** [fin-and-tube heat exchanger](#) [tube circuit](#) [genetic algorithm](#) [optimization](#)

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