

传递现象

R134a在水平双侧强化管外沸腾换热

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收稿日期 2007-2-6 修回日期 2007-7-28 网络版发布日期 2007-11-7 接受日期

摘要

对氟里昂R134a在水平单管外的沸腾换热性能进行了试验研究, 试验管为4根双侧强化管。在蒸发温度为8℃时比较不同肋型的强化换热性能。结果表明: 所研究的强化管均有明显的强化换热作用, E12管的总传热系数略高于其他强化管, 其管外沸腾传热系数相对于光管Cooper公式预测值的强化倍率为2.23~2.71, 平均值为2.54。由于R22和R134a的物性不同, 其管外沸腾传热系数约比R134a高出20%~40%。试验管的沸腾换热强化倍率与制冷剂的关系不明显。

关键词

[强化管](#) [沸腾换热](#) [传热特性](#)

分类号

Boiling heat transfer of R134a outside horizontal doubly-enhanced tubes

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Abstract

An experimental study on the performance of boiling heat transfer of R134a outside a single horizontal tube was conducted for four doubly-enhanced tubes (E10, E11, E12, E15) with different geometries at saturation temperature of 8°C. Experimental results showed that the studied tubes could effectively enhance heat transfer. The overall heat transfer coefficients of the tube E12 were higher than that of the others, and its enhancement factors, the boiling heat transfer coefficient relative to that of Cooper solutions for smooth surface, varied from 2.23 to 2.71, with an average value of 2.54. Because of the different thermodynamic properties, the boiling heat transfer coefficients of R22 were 20%—40% higher than those of R134a. The enhancement factor of boiling heat transfer was independent of refrigerant.

Key words

[enhanced tubes](#) [boiling heat transfer](#) [heat transfer characteristics](#)

DOI:

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