

热力学

不同制冷剂喷射制冷性能计算分析

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收稿日期 2009-7-9 修回日期 2009-11-24 网络版发布日期 2010-3-2 接受日期

摘要

引入制冷剂的实际物性,建立了喷射器热力学模型;比较了沸点相近工质在喷射器内的压力和速度变化趋势及喷射系数,探讨了引起喷射器性能差异的主要物性因素;比较了几组具有相近沸点制冷剂的喷射制冷性能。结果表明:对沸点相近的工质来说,一般工作蒸气的比焓值越高,喷射系数越高;沸点相近的工质对中,R717的性能优于R290,R152a优于R134a,R141b优于R123,R142b优于R600a;在研究的所有制冷剂中,R717的制冷性能最好,R152a次之,两者的COP(性能系数)值差随发生温度的升高而增大。

关键词

[喷射式制冷](#) [喷射系数](#) [COP](#) [制冷剂](#)

分类号

Calculation and analysis for an ejector refrigeration system with various refrigerants

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Abstract

A thermodynamic model of ejector was established by introducing refrigerant property. The change in pressure and temperature in the ejector and the entrainment ratio of ejector for several refrigerants with similar normal boiling point were compared, and the difference in injector performance was analyzed according to refrigerant properties. The refrigeration performances of several pairs of refrigerants with similar normal boiling points were also compared. The results indicate that higher specific enthalpy of driving vapor results in higher entrainment ratio of ejector. Among the refrigerants studied, R717 gives the best performance and R152a takes the second place, and their COP difference increases with generation temperature.

Key words

[ejector refrigeration](#) [entrainment ratio](#) [COP](#) [refrigerant](#)

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