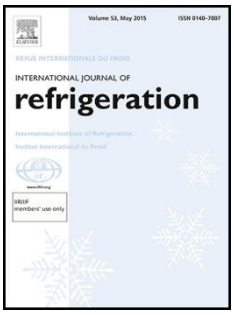
Accepted Manuscript



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PII: S0140-7007(17)30386-9
DOI: https://doi.org/doi:10.1016/j.ijrefrig.2017.09.028
Reference: JIJR 3770

To appear in: *International Journal of Refrigeration*

Received date: 12-5-2017
Revised date: 6-9-2017
Accepted date: 30-9-2017

Please cite this article as: Hailun Zhang, Lei Wang, Lei Jia, Hongxia Zhao, Chen Wang, Influence investigation of friction on supersonic ejector performance, *International Journal of Refrigeration* (2017), https://doi.org/doi:10.1016/j.ijrefrig.2017.09.028.

Influence investigation of friction on supersonic ejector performance

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Highlights

- Effects of internal surface roughness on ejector performance were investigated.
- Ejector performance is quite sensitive to the roughness level.
- Friction in different parts represent diverse impacts on ejector performance.
- The correlations regarding the friction for numerical calculations were discussed.

Abstract

The effects of internal surface roughness on ejector performance were investigated by dividing the ejector into five categories: the nozzle, suction chamber, mixing chamber, constant-area section and diffuser with the computational fluid dynamics (CFD) technique. Each section was analyzed with the experimental values obtained from the ejector refrigerant platform by using replaceable nozzles with different levels of roughness. It was ascertained that friction has a noticeable influence on the performance of the ejector; therefore, an increase in the roughness level will essentially lead to a decline in the ejector's working performance. Furthermore, the