Accepted Manuscript

Title: Visualization Of Refrigerant Flow At The Capillary Tube Inlet Of A High-Efficiency Household Refrigerator

Author: Santiago Martínez-Ballester, Laetitia Bardoulet, Alessandro Pisano, José M. Corberán

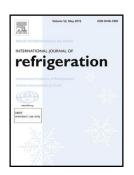
PII: S0140-7007(16)30300-0

DOI: http://dx.doi.org/doi: 10.1016/j.ijrefrig.2016.09.019

Reference: JIJR 3434

To appear in: International Journal of Refrigeration

Received date: 30-3-2016 Revised date: 16-9-2016 Accepted date: 19-9-2016



Please cite this article as: Santiago Martínez-Ballester, Laetitia Bardoulet, Alessandro Pisano, José M. Corberán, Visualization Of Refrigerant Flow At The Capillary Tube Inlet Of A High-Efficiency Household Refrigerator, *International Journal of Refrigeration* (2016), http://dx.doi.org/doi: 10.1016/j.ijrefrig.2016.09.019.

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

ACCEPTED MANUSCRIPT

VISUALIZATION OF REFRIGERANT FLOW AT THE CAPILLARY TUBE INLET OF A HIGH-EFFICIENCY
HOUSEHOLD REFRIGERATOR

Santiago Martínez-Ballester,* Laetitia Bardoulet, Alessandro Pisano, José M. Corberán

Universitat Politècnica de València, Institute for Energy Engineering. Camino de vera, s/n, Valencia, 46022, Spain

* Corresponding Author. Tel.: +34 963 879 120; E-mail address: sanmarba@gmail.com (S. Martínez). Highlights

>Refrigerant visualization at condenser outlet and capillary tube inlet is presented>The test bench allows to study different filter and flow directions>Despite measuring subcooling on the wall there is two phase flow at condenser outlet>All the tests show two-phase flow at the capillary tube inlet.

ABSTRACT

The subcooled condition at the condenser outlet ensures complete condensation, which is necessary in vapor compression systems to increase the cooling capacity and ensure the liquid conditions at the expansion device inlet. However, in household refrigerators, recent works indicate the presence of two-phase flow at the capillary tube inlet. These systems behave quite differently from other refrigeration systems due to the extremely low capacity. In the present work, a test bench was built to visualize the refrigerant flow at the condenser outlet and at the capillary tube inlet of a commercial household refrigerator. A transparent tube replaced the end of the condenser and three transparent filters were installed with different orientations. Different positions of the capillary tube within the filters were also tested. Despite measuring a certain subcooling, all the reported visualizations showed that the capillary tube was steadily drawing in two-phase flow.

Download English Version:

https://daneshyari.com/en/article/5017217

Download Persian Version:

https://daneshyari.com/article/5017217

<u>Daneshyari.com</u>