

ThermoCycle Moving Boundary Model

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Abstract

Test

1 Motivation

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Moving boundary (MB) formulation based on [1].

2 Formulation

2.1 Assumptions

2.2 Equations

2.3 Heat Transfer

Based on Nusselt number (Nu) for a characteristic length L . Angles are usually calculated in radians or π .

2.4 Pressure Drop

3 Results and Discussion

Compared to [2], the model

[3]

[4]

4 Conclusion

References

- [1] Satyam Bendapudi, James E. Braun, and Eckhard A. Groll. A comparison of moving-boundary and finite-volume formulations for transients in centrifugal chillers. *International Journal of Refrigeration*, 31(8):1437–1452, 2008.
- [2] Martin Ryhl Kærn. *Analysis of Flow Maldistribution in Fin-and-tube Evaporators for Residential Air-conditioning Systems*. Phd thesis, Technical University of Denmark, 2011.
- [3] Wei-Jiang Zhang and Chun-Lu Zhang. A generalized moving-boundary model for transient simulation of dry-expansion evaporators under larger disturbances. *International Journal of Refrigeration*, 29(7):1119–1127, November 2006.
- [4] Wei-Jiang Zhang, Chun-Lu Zhang, and Guo-Liang Ding. On three forms of momentum equation in transient modeling of residential refrigeration systems. *International Journal of Refrigeration*, 32(5):938–944, August 2009.

5 Examples for Nomenclature

When used the first time, the full description appears for acronyms: donor dye, ex. Alexa 488 (D_{dye}), Förster distance (R_0), Förster distance, k_{DEAC}

Plural versions can be printed by Förster distances and k_{DEACS} Capital letters for sentence beginnings are available as well D_{dye}

.. and now we also use the symbols π .

Glossary

L Length (m). 1

Acronyms

MB moving boundary. 1

Dimensionless Numbers

Nu Nusselt number: $Nu = \frac{\text{Convection}}{\text{Conduction}} = \frac{hL}{k_f}$. 1

Greek Symbols

π ratio of circumference of circle to its diameter. 1