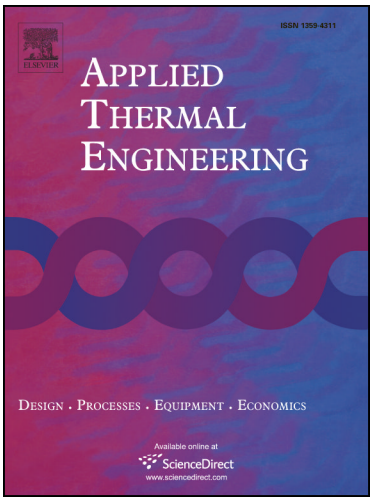


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PII: S1359-4311(17)35838-6
DOI: https://doi.org/10.1016/j.applthermaleng.2018.01.055
Reference: ATE 11709

To appear in: *Applied Thermal Engineering*

Received Date: 8 September 2017
Revised Date: 22 December 2017
Accepted Date: 16 January 2018

Please cite this article as: P.V. Trevizoli, G.F. Peixer, A.T. Nakashima, M.S. Capovilla, J.A. Lozano, J.R. Barbosa Jr., Influence of inlet flow maldistribution and carryover losses on the performance of thermal regenerators, *Applied Thermal Engineering* (2018), doi: https://doi.org/10.1016/j.applthermaleng.2018.01.055

# Influence of inlet flow maldistribution and carryover losses on the performance of thermal regenerators

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**Abstract**

Void (dead) volumes represent a penalty to the thermal performance of Active Magnetic Regenerators (AMR). While much effort has been put in designing AMRs with small void volumes, in most designs, penalties associated with inlet flow maldistribution and pressure loss may increase with the reduction of the void volumes. In this work, an experimental evaluation of the combined effect of void volume and inlet flow maldistribution is carried out. The analysis is performed based on the regenerator thermal effectiveness determined experimentally in a passive regenerator test apparatus. The results show that the negative impact of inlet flow maldistribution on the regenerator effectiveness is more significant than that of the void volume.

*Keywords:* Active Magnetic Regenerator (AMR), magnetic refrigeration, dead volumes, inlet flow maldistribution, passive regenerator apparatus.

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