An investigation on the role of thermal fins in the design of micro heat exchangers

The different dominant physical phenomena in design for micro and macro scale products result in different design considerations for both categories. In the current study, a few design concepts are proposed as micro heat exchangers. In addition, the influential parameters on design of a micro heat exchanger in comparison with the effective factors in designing its macro counterpart are investigated. Numerical simulations in the finite element software COMSOL are used to evaluate the thermal performance of both micro and macro heat exchangers. The result of the analysis reveals the fact that the presence of some features such as “fins” in micro heat exchanger is not as significant as it is in macro scale. The results of this study can be employed as guidelines in design of similar micro heat exchangers.

General information
State: Published
Organisations: Department of Mechanical Engineering, Manufacturing Engineering, Department of Energy Conversion and Storage, Electrofunctional materials
Contributors: Omidvarnia, F., Hansen, H. N., Sarhadi, A.
Number of pages: 2
Publication date: 2015

Host publication information
Title of host publication: Proceedings of Euspen's 15th International Conference & Exhibition
Source: PublicationPreSubmission
Source-ID: 110963172
Research output: Research - peer-review › Article in proceedings – Annual report year: 2015