Proceedings of CHT-15
ICHMT International Symposium on Advances in Computational Heat Transfer

May 25-29, 2015, Rutgers University, Piscataway, USA

CHT-15-071

Effect of cross-cut on heat transfer performance and pressure drop in wavy fin

Gun Woo Kim[*], Hyun Muk Lim[*], Seo Young Kim[**] and Gwang Hoon Rhee [***,§]
[*] Graduate School of Mechanical and Information Engineering, University of Seoul, Seoul, Korea
[**] SEOJIN Technology, Seoul, Korea
[***]Dept. of Mechanical and Information Engineering, University of Seoul, Seoul, Korea
[§]Correspondence author. Fax: +82 2 6490 2384 Email: ghrhee@uos.ac.kr

ABSTRACT The effect of cross-cut on the heat transfer performance and the pressure drop in a laminar wavy fin was assessed by CFD method. The concept of cross-cut is cutting fin in a direction perpendicular to the flow direction. A five-waved wavy fin with 20 degree corrugation angle was used as the two-dimensional geometry of simulation. The Cross-cut was applied at the region of right after 3rd wave peak with $0.2D_h$ length. As a result, the heat transfer was increased maximum 20.3% more than that of no cut wavy fin. The pressure drop was also increased maximum 6.8%. The heat transfer performance was enhanced because cutting makes flow at the middle can attach to the fin wall.