

Numerical Simulation of Contact Condition Effects on Heat Exchanger Performance

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A numerical study has been conducted to investigate effects of fin collar form of cross fin-tube heat exchangers on heat transfer performance. Two adjacent fin collars and a heat transfer tube form a triangular space during the manufacturing process. The triangular space affects the thermal resistance between the tube and fin collars. The increase in triangular space increases non-contact surface area between the tube and fin collar, which decreases the average contact conductance. A decrease of the average contact conductance causes a decrease in the heat transfer rate.