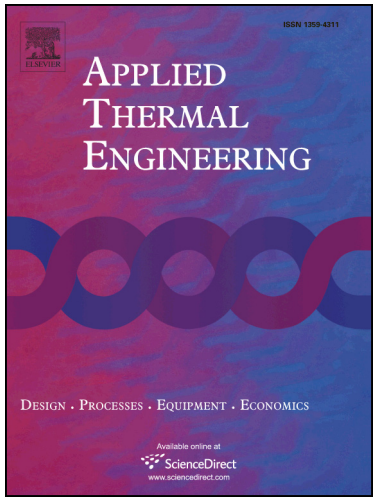

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Experimental and Numerical Study on Heat Transfer, Flow Resistance, and Compactness of Alternating Flattened Tubes

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Abstract

Recently, increasing heat transfer rate of heat exchangers and reducing their size without experiencing a significant increase in flow resistance has been the main focus of several studies. Through the course of these studies, a wide range of active and passive methods have been implemented. Among these methods, changing the geometry of the heat exchanger tubes has received an increasing attention due to its simplicity and cost-effectiveness. In this study, a new geometry called the alternating flattened tube is introduced and its performance against other widely used tubes is evaluated. To compare the heat transfer, pressure drop, and compactness of the tubes simultaneously, a parameter called tube performance enhancement ratio is introduced. Both experimental and numerical results show that the alternating flattened

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