

عنوان مقاله:

Experimental investigation of nanofluid flow inside Serpentine heat exchangers with variable pitch length

محل انتشار:

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نویسندگان:

Ahmad. Alizadeh - *Young Researchers Club, Qouchan Branch, Islamic Azad University, Qouchan, Iran*
Corresponding author

Mahdi Fattahalhosseini - *Department of Chemical Engineering, College of Engineering, Shahrood Branch, Islamic Azad University, Shahrood, Iran*

MohammadHossein Akbari - *Department of Chemical Engineering, College of Engineering, Shahrood Branch, Islamic Azad University, Shahrood, Iran*

خلاصه مقاله:

Indirect channels like the serpentine tubes are widely utilized in many engineering applications such as chemical and petrochemical industries, air conditioning and refrigeration systems, and modern energy conversion, etc. In the present work, the effect of straight section length variations on the performance of serpentine-tube heat exchangers is experimentally investigated. To obtain accurate results, a highly precise test loop with the ability to produce a constant wall temperature condition is designed and fabricated. It is found that creating short straight section lengths at the beginning of the serpentine tubes enhances both the heat transfer coefficient and pressure drop values. To obtain accurate results, a highly precise test loop with the ability to produce a constant wall temperature condition is designed and fabricated. It is found that creating short straight section lengths at the beginning of the serpentine tubes enhances both the heat transfer coefficient and pressure drop values. However, this technique improves the overall thermal-hydraulic performance of the serpentine tubes about 10%.

کلمات کلیدی:

Heat transfer enhancement, Serpentine tube, Straight section length variations, Experimental study

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