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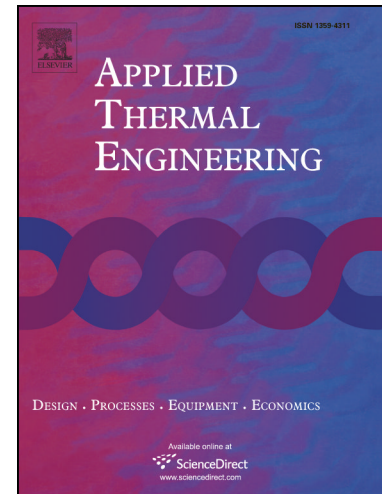
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# Effects of twisted tapes on thermal performance of tri-lobed tube: An applicable numerical study

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## Abstract

Flow field and thermal performance of tri-lobed tube with twisted tape is investigated in this work. This investigation has been performed at different Reynolds number from 5000 to 20000 for various pitches of 100, 150 and 200 millimeter. Because of geometric parameters effect in flow field and heat transfer, investigations have been done by four different ratios of baffle width to tube diameter ( $W/D=0.15, 0.25, 0.34$  and  $0.4$ ). Numerical results showed that by increasing the Reynolds number Nusselt number increased in all different pitches. Moreover, friction factor decreased by increasing Reynolds number. Overall thermal performance also totally decreased by increasing Reynolds number. As pitch ratio grows from 0.15 to 0.4 Nusselt number, friction factor and overall thermal performance increased. Pitches of 0.15, 0.25 and 0.34 have relatively same overall thermal performance at 20000 Reynolds number.

**Keywords:** Numerical study; Thermal performance; Twisted tape; Tri-lobed tube; Heat transfer;

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