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Effect of V-Shape Twisted Jaw Turbulators on Thermal Performance of Tube heat exchanger: An Experimental Study

***Abstract-** The main purpose of the present investigation is enhancing heat transfer rate in a tube heat exchanger by using V-shape twisted Jaws. The air is used as a working fluid and pumped through the test section with different values of Reynolds number (6000 - 19500), while the heat flux has been selected as a constant boundary condition around the tube section. In this study, two type of twisted jaw turbulators are used with two twisted ratio ($TR= 2$ & 4) as well as, the effect of using different numbers of turbulators ($N= 6, 8$ and 10) inside test section with equal distances between pieces are studied. The results indicated that, using augmentations with $TR=2$ gives better heat transfer rate and thermal performance factor comparing with the other case $TR=4$. The maximum rate of heat transfer is achieved in case of $N=10$ by an increased 160.29% for $TR=2$ and 102% for $TR=4$ comparing with plain tube case. In addition, results show that the values of thermal performance factor exceed the unity and shows uptrend behavior with rising numbers of turbulators indicating to feasibility of using these turbulators practically.*

***Keywords-** Tube heat exchanger, Twisted Jaws turbulators, Thermal performance factor.*

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