

A REVIEW ON VARIOUS INSERTION TECHNIQUES IN DOUBLE PIPE HEAT EXCHANGER

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¹Panahali Chimta, ²Manjeet Khare, ³Shadab Khan, ⁴Farhan Khan, ⁵Prashant Singh Tomar

¹³⁴Student, ²⁵Assistant Professor

¹²³⁴⁵Mechanical Engineering

¹²³⁴⁵Parul Institute of Technology, Vadodara, India

Abstract: The authors studied various techniques that promoted heat transfer rate and to decrease size and cost of equipment of heat exchanger to upgrade the heat transfer rate. One the most important tool used in passive heat transfer method mainly for turbulence flow is twisted tape inserts. Various past techniques used for turbulence zone and overall improvement ratio picked the most methodological type of twisted tape. Earlier many reviews, experimental and numerical works done on twisted tape, wire coil, swirl flow generator, ribs, louvered strips, conical rings, modification in tubes from plain tube to conical shaped tube, etc., in order to increase various main parameters in heat exchanger. The authors also found that amongst variously developed techniques, twisted tape inserts are widely researched and used technique in order to improve the overall performance of heat exchangers. Studies also show that twisted tape inserts are most suitable for laminar flow than turbulent flow. While the other passive techniques such as ribs, conical nozzle and conical rings, etc. are more suitable for turbulent flow than laminar flow.

Index Terms - Heat Transfer, Double Pipe Heat Exchanger, Twisted Tape, Wire coil, Nusselt Number, Reynolds Number