



Figure 1. Streamline, velocity vector and local Nusselt number in round tube fitted with overlapped quadruple twisted tapes

SWIRL FLOW AND HEAT TRANSFER IN TUBES FITTED WITH MULTIPLE TWISTED TAPES

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The contour plot and local heat transfer (Nu) of four swirling flows in tube inserted with overlapped quadruple twisted tapes are demonstrated. The interaction among swirl flows induced by different tapes that indicated by the merging of the orange and black lines. As overlapped ratio (y_o/y) decreases, recirculation zone becomes smaller. This can be explained that the tape pair with smaller twist length induced stronger swirl flows which suppress the effect of the recirculation. The stronger swirl flows are responsible for better mixing, stronger flow fluctuation and thus higher heat transfer rate.