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Temperature Distribution Simulation of Divergent Fluid Flow with Helical Arrangement

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Abstract : Numerical study is performed to investigate the temperature distribution in an annular diffuser fitted with helical tape hub. Different pitches (Y = 20 mm, and Y = 30 mm) for the helical tape are studied with different heights (H = 20 mm, 22 mm, and 24 mm) to be compared. The geometry of the annular diffuser and the inlet condition for both hub arrangements are kept constant. The result obtains that using helical tape insert with different pitches and different heights will force the temperature to distribute in a helical direction; however the use of helical tape hub with height (H = 22 mm) for both pitches enhance the temperature distribution in a good manner.

Keywords : helical tape, divergent fluid flow, temperature distribution, swirl flow, CFD
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