Estimation of Pressure Loss Coefficients in Combining Flows Using Artificial Neural Networks

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Abstract : This paper presents a new method for calculation of pressure loss coefficients by use of the artificial neural network (ANN) in tee junctions. Geometry and flow parameters are feed into ANN as the inputs for purpose of training the network. Efficacy of the network is demonstrated by comparison of the experimental and ANN based calculated data of pressure loss coefficients for combining flows in a tee junction. Reynolds numbers ranging from 200 to 14000 and discharge ratios varying from minimum to maximum flow for calculation of pressure loss coefficients have been used. Pressure loss coefficients calculated using ANN are compared to the models from literature used in junction flows. The results achieved after the application of ANN agrees reasonably to the experimental values.