

An Innovative Iterative Method to Derive Forced Convection Correlations from the Lowest Number of Generated Data

Ramin Jalali¹ and Masoud Darbandi¹

¹Sharif University of Technology

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Abstract

The turbulent flow incorporated with forced convection heat transfer is considered as a complex phenomenon and it is hard to predict analytically. Evidently, empirical correlations and numerical simulations regard as the most suitable approaches to estimate the turbulent flow integrated with forced convection heat transfer. The main objective of this study is to derive the DittusBoelter equation (an equation used to find the heat transfer coefficient for turbulent flow through pipes) unexperimentally using the minimum number of numerical trial. This paper uses the numerical simulation data and generate novel random data to reach the dittusBoelter relation; generating minimum data.

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