

Article Abstract

Title:	An experimental investigation of turbulent flow heat transfer through tube with rod-pin insert
Author(s):	M. A. K. Chowdhuri ^{1*} , R. A. Hossain ² , M.A.R. Sarkar ³
Address(es):	^{1,3} Department of Mechanical Engineering, Bangladesh University of Engineering & Technology, Dhaka-1000, BANGLADESH ² Department of Mechanical Engineering, University of Alberta, Canada *Corresponding Author: Current address: Department of Mechanical Engineering, University of Alberta, Canada, e-mail: khanchow@ualberta.ca, Tel +1-780 752 7568
Journal:	<i>International Journal of Engineering, Science and Technology</i> , Vol. 3, No. 4, 2011, pp. 76-81.
Abstract:	An experimental investigation has been carried out to study the turbulent flow heat transfer and to determine the pressure drop characteristics of air, flowing through a tube with insert. An insert of special geometry is used inside the tube. The test section is electrically heated, and air is allowed to flow as the working fluid through the tube by means of a blower. Air velocity, air inlet and outlet temperature, local wall temperature and the pressure drop are measured to determine the friction factor, the Nusselt number, and the heat transfer coefficient. The same experiment is carried out to determine heat transfer through the same tube without any insert. Comparing the results obtained from these two different sets of experiments, it is found that heat transfer through tube can be enhanced by using inserts inside the tube up to 9.8 times than tube without insert.
Keywords:	Heat Transfer Enhancement, Inserts, Pressure Drop, Turbulent flow