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PRESSURE DROP ANALYSIS OF INLET PIPE WITH REDUCER AND WITHOUT REDUCER USING CFD ANALYSIS

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ABSTRACT

A plate heat exchanger uses metal plates to transfer heat between two fluids. The metal plates are made up of stainless steel because of its ability to withstand high temperatures, its strength and its corrosion resistance. PHE is use in industries such as chemical, food and pharmaceutical process and refrigeration. The attempt made in this paper is to study the pressure drop in accessories of plate heat exchanger and to observe which geometry of inlet pipe gives the best results. Using simulation. Computational Fluid Dynamic (CFD) is a tool used in this simulation which consists of ICEM CFD and FLUENT. Volume meshing in ICEM is an important part to be considered before doing simulation in FLUENT as a solver.

The velocity for water were calculated using flow rate of 1680m^3/hour. Inlet dimension of pipe is 500mm and material of pipe is steel. Water is fluid which is passed through pipe. The temperature of water is 25degree Celsius.

Thus, this paper presents the simulation of pressure drop at inlet of reducer and without reducer of pipe of plate heat exchanger model.

KEYWORDS: Plate Heat Exchanger (PHE), CFD, ICEM, Pressure Drop Analysis