The Study of Heat Exchanger Design through Genetic Algorithms

E-mail: 9501007@ mail.dyu.edu.tw

ABSTRACT

The purpose of this study is to develop a computer aided heat exchanger design system which provides a user friendly interface, combined with Borland C++ Builder interactive operation mode and MS-SQL extensive database processing capability. The final design will be the one with minimal heat exchanger area within the space constrain. The heat exchanger design program integrates the related theories, empirical formula, some media's data and the genetic algorithm. Different sizes of sorting of original sample pool initiates the operation of genetic algorithm. The effect of increase of sample pool is also evaluated .There are six genetic parameters, to form the original twenty thousands sample pool. The most efficient gene sorting group is one thousand, and the calculation time needed toward convergence is 9 seconds. The completeness of original sample pool is essential for the optimal heat exchanger design. The more sample pool used, the better the exchanger design. However, the more sample will elongate the convergent time as well.

Keywords : Heat Exchanger ,Genetic Algorithms

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