

A Cost-Effective Evaluation of Proper Control Process of Air-Cooled Heat Exchanger

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Abstract : One of the key factors in air cooled heat exchangers operation is the proper control of process stream outlet temperature. In this study, performances of two different air cooled heat exchangers have been considered, one of them condenses Propane and the other one cools LPG streams. In order to predict operation of these air coolers at different operating conditions. The results of simulations were applied for both economical evaluations and operational considerations for using convenient air cooler control system. In this paper, using On-Off fans method and installing variable speed drivers have been studied. Finally, the appropriate methods for controlling outlet temperature of process fluid streams as well as saving energy consumption were proposed. Using On-Off method for controlling studied Propane condenser by multiple fans is proper; while controlling LPG air cooler with lesser fans by means of two variable speed drivers is economically convenient.

Keywords : air cooled heat exchanger, simulation, economical evaluation, energy, process control