

## Design and Optimization of Heat Pump System Employing Blower for Improving the Separation Processes

이동영, Nguyen Van Duc Long<sup>1,†</sup>, Moonyong Lee<sup>1</sup>

영남대학교; <sup>1</sup>Yeungnam University

(mynlee@ynu.ac.kr<sup>†</sup>)

Recently the attempt to apply heat pump system for improving the energy efficiency of industrial separation processes is getting more and more popular. Heat pump system refers to technology that raise the temperature level of the available heat and then utilize those heat. In distillation process, energy saving can be achieved by pumping the waste heat of condenser to reboiler to reduce the steam amount significantly used in the reboiler. To raise the pressure of the stream, both compressor and blower can be used. Blowers can be considered when the temperature difference is quite small because they do not require so much duty. However, the use of blowers as heat pump system is restricted to high pressure process and is required to search some optimal conditions. This paper studies some conditions for heat pump system with blowers in separation process as well as compares the performance of heat pump systems using blowers and compressors.