

Design and Optimization of Blower based Heat Pump System for Improving the Separation and Purification Processes in Chemical Industry

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Many chemical engineers do the attempt to apply heat pump system for improving the energy efficiency of industrial separation processes recently. Heat pump system can make energy saving 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, when blower is used for heat pump system, high pressure process is restricted and search some optimal conditions is required. 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.

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