



TECHNOLOGY

Expander-TE Subcooler

OVERVIEW

The Expander-TE Subcooler is a device which improves both the coefficient of performance (COP) and the cooling capacity of a vapor compression cycle simultaneously. The device includes two components: a thermoelectric (TE) subcooler heat exchanger and an expander with a coupled generator.

In summary, the Expander-TE subcooler greatly increases the capacity of a vapor compression cycle without requiring additional power. Additionally the Expander-TE subcooler allows the high side pressure to be reduced, decreasing the power required by the compressor. The device could be applied to vapor compression cycles of various capacities. As evaporation temperature is reduced the relative improvements in COP and capacity increase. Applications include building/home air conditioning, wall unit room air conditioning, vehicle air conditioning, medium and low temperature refrigeration.

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Additional Information

INSTITUTION

University of Maryland, College Park

PATENT STATUS

Patent(s) pending

LICENSE STATUS

Available for exclusive or non-exclusive license

CATEGORIES

- Engineering
- Chemical

EXTERNAL RESOURCES

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