

Accepted Manuscript

Theoretical evaluation of different high-temperature heat pump configurations for low-grade waste heat recovery

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PII: S0140-7007(18)30123-3
DOI: [10.1016/j.ijrefrig.2018.04.017](https://doi.org/10.1016/j.ijrefrig.2018.04.017)
Reference: JIJR 3957



To appear in: *International Journal of Refrigeration*

Received date: 1 February 2018
Revised date: 17 April 2018
Accepted date: 18 April 2018

Please cite this article as: Carlos Mateu-Royo , Joaquín Navarro-Esbrí , Adrián Mota-Babiloni , Marta Amat-Albuixech , Francisco Molés , Theoretical evaluation of different high-temperature heat pump configurations for low-grade waste heat recovery, *International Journal of Refrigeration* (2018), doi: [10.1016/j.ijrefrig.2018.04.017](https://doi.org/10.1016/j.ijrefrig.2018.04.017)

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Highlights:

- The energy performance and volumetric heating capacity of different vapour compression configurations are compared.
- HCFO-1233zd(E), HFO-1336mzz(Z), Butane and n-Pentane are considered as alternative working fluids for HFC-245fa.
- The alternatives suggested increase the energy performance in all conditions and configurations.
- The proper configuration selection is highly dependent on the temperature lift between the evaporation and condensing temperatures.
- n-Pentane achieves the highest COP of 3.85 for heating production up to 150 °C.

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