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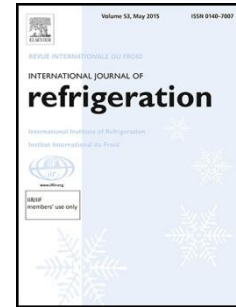
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CLEAN VERSION OF THE MANUSCRIPT

Multi-criteria (Thermodynamic, Economic and Environmental) analysis of possible design options for residential heating split systems working with Low GWP Refrigerants

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Highlights

- Multi-objective thermo-economic and environmental optimization of 5 kW residential space heating split system.
- Comparison of alternative low GWP refrigerant in terms of performance, costs (set-up and total ones) and LCCP.
- Current compressor and heat exchangers performance data and costs used.

Abstract

An analysis of design configurations is proposed for a 5 kW residential space heating split system comparing several low GWP refrigerants (R32, R290, R1234yf, R1234ze, XL41, XL55) as potential alternative to the most common refrigerants actually used (R410A, R407C, R134a). By means of an ad-hoc model, the system performance has been estimated for several geometrical configurations among those possible according to the current compressor and heat exchangers

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