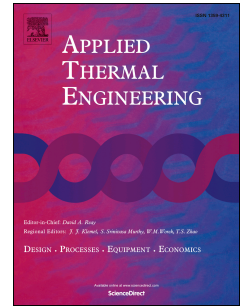


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Abstract

Heat exchanger network (HEN) retrofit has been an important task in process design. Many approaches have been presented. However, this important activity can still benefit from an enhanced visualisation and decision-making tool. This paper proposes an extended type of Grid Diagram properly visualising the HEN arrangements and key parameters such as heat capacity flowrates (CPs), temperatures and temperature differences. It is capable of accounting for thermodynamics and loads simultaneously, providing a way of screening feasible from infeasible retrofit options and identifying the possible trends and the limits to heat recovery increase after a new HEN path is specified. A case study has been used to demonstrate the retrofit procedure enhancement.

Keywords: Heat Exchanger Network, Retrofit, Extended Grid Diagram, Heat Path Development, Shifted Retrofit Thermodynamic Grid Diagram

Nomenclature

HEN	Heat exchanger network
CP	Heat capacity flowrates [kW/°C]
PP	Process Pinch
NP	Network Pinch
NPes	Network Pinches
RTD	Retrofit Thermodynamic Diagram
SRTD	Shifted Retrofit Thermodynamic Diagram
SRTGD	Shifted Retrofit Thermodynamic Grid Diagram
T	Temperature [°C]
T*	Shifted temperature [°C]

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