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| Authors | Title | Method |
| Hwa (1965) | Mathematical Formulation and Optimization of Heat Exchange Network using Separable Programming | Separable Programming |
| Kesler and Parker (1969) | Optimal Network of Heat Exchanger | Linear Programming |
| Masso and Rudd (1969) | Synthesis of System Designs: II. Heuristic Structuring | Heuristic Structuring |
| Lee et al. (1970) | Branch and Bound Synthesis of Integrated Process Designs | Branch and Bound |
| Hohmann (1971) Thesis | Optimum Networks for Heat Exchange | Cascade Table and Graphical Pinch for Targeting minimum utility |
| Pho and Lapidus (1973) | Synthesis of Optimal Heat Exchanger Network by Tree Search Algorithm | Tree Search |
| Shah and Westerberg (1975) | Evolutionary Synthesis of Heat Exchanger Networks | Heuristic and Evolutionary Rules |
| Nishida et al. (1977) | Studies in Chemical Process Design and Synthesis: III. A simple and Practical Approach to the Optimal Synthesis of Heat Exchanger Network | Heat Cascade and Evolutionary Rules |
| Linnhoff and Flower (1978) | Evolutionary Generation of Networks with Various Criteria of Optimality | Temperature Interval Method |
| Linhoff and Hindmarsh (1983) | The pinch design method for heat exchanger networks | Pinch Design Method |

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| Authors | Title | Method |
| Papoulias and Grossmann (1983) | A Structural optimization approach in process synthesis – I: Utility systems | MILP Targeting minimum utility |
| Floudas et al. (1986) | Automatic synthesis of optimum heat exchanger network configuration | MINLP superstructure considering parallel matching, stream splitting, mixing and bypassing. |
| Athier et al. (1997) | Synthesis of Heat-Exchanger Network by Simulated Annealing and NLP Procedures | Simulated Annealing  (Meta-Heuristics) |
| Zamora and Grossmann (1998) | A global MINLP optimization algorithm for the synthesis of heat exchanger networks with no stream splits | Guarantee MINLP global optimum for no stream split. |
| Bijork and Westerlund (2002) | Global optimization of heat exchanger network synthesis problems with and without isothermal mixing assumptions | MINLP with various combination of solvers |
| Ravagnani et al. ( 2005) | Heat exchanger network synthesis and optimisation using genetic algorithm | Genetic Algorithm  (Meta-Heuristics) |
| Yerramsetty and Murty (2008) | Synthesis of Cost-Optimal Heat Exchanger Network using Differential Evolution | Differential Evolution  (Meta-Heuristics) |
| Silva et al. (2010) | Optimal heat exchanger network synthesis using particle swarm optimization | Particle Swarm Optimization (Meta-Heuristics) |
| Zhang et al. (2016) | A novel hybrid chaotic ant swarm algorithm for heat exchanger network synthesis | Chaotic Ant Swarm Algorithm (Meta-Heuristics) |