عنوان مقاله:

Area Energy and Throughput Targeting in Debottlenecking of Heat Exchanger Networks with Decomposition Approach

محل انتشار:

مجله پردازش گاز, دوره 4, شماره 1 (سال: 1395)

تعداد صفحات اصل مقاله: 12

نویسندگان:

Sara Kafashian - *Faculty of Mechanical Engineering, KNToosi University of technology, Tehran, Iran*

Gholam Reza Salehi - *Mechanical engineering faculty, Islamic Azad University, Central Branch, of Tehran, Tehran, Iran*

Majid Amidpour - *Faculty of Mechanical Engineering, KNToosi University of technology, Tehran, Iran*

خلاصه مقاله:

For energy saving retrofit projects, its economics are usually evaluated in terms of capital investment and payback time. The capital investment is in direct relation to the total heat recovery area of the network and the payback time factor is base on both the area and the energy savings. The debottlenecking is an increased throughput, which can be profitable in economic sense. The combination of these two different objectives leads to a new definition of payback time, which differs, from the simple payback of savings to investment ratio. The correlation among area, energy savings and throughput increase is assessed based on pinch technology. The variation in energy savings and network area with throughput increase considering both economic factors of investment and payback time is reflected in the results. The decomposition approach is implemented as well, and its contribution in rapid detection of the most economical opportunity of network debottlenecking is discussed and the findings are diagramed separately. A visual software code is developed and validated in this study.

کلمات کلیدی:

Debottlenecking, Throughput Increase, Pinch Technology, Heat Exchanger Network