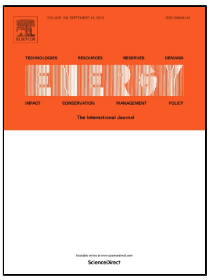
Accepted Manuscript



Configuration Optimization of an Enhanced Ejector Heat Exchanger Based on an Ejector Refrigerator and a Plate Heat Exchanger

Fangtian Sun, Xu Chen, Lin Fu, Shigang Zhang

PII:	S0360-5442(18)31731-6
DOI:	10.1016/j.energy.2018.08.194
Reference:	EGY 13670
To appear in:	*Energy*
Received Date:	31 May 2018
Accepted Date:	27 August 2018

Please cite this article as: Fangtian Sun, Xu Chen, Lin Fu, Shigang Zhang, Configuration Optimization of an Enhanced Ejector Heat Exchanger Based on an Ejector Refrigerator and a Plate Heat Exchanger, *Energy* (2018), doi: 10.1016/j.energy.2018.08.194

Configuration Optimization of an Enhanced Ejector Heat Exchanger Based on an Ejector Refrigerator and a Plate Heat Exchanger

Fangtian Sun[a,b*], Xu Chen[a], Lin Fu[b], Shigang Zhang[b]

[a] Beijing University of Civil Engineering and Architecture, Beijing 100044, China

[b] Tsinghua University, Beijing 100084, China

ABSTRACT:

Ejector heat exchanger has good performance in heat transfer, but its regulating characteristics are poor, and to improve its regulating characteristics, an enhanced ejector heat exchanger (EHE) with a pressure booster is presented. According to the difference in location of the pressure booster, the enhanced ejector heat exchangers are divided into two types. One is EHE-MF with its pressure booster located in the pipeline between outlet of ejector and refrigerant inlet of the condenser. The other is EHE-SF with its pressure booster located in the pipeline between secondary fluid inlet of ejector and refrigerant outlet of the evaporator. The two enhanced ejector heat exchangers have been analyzed from the perspective of thermodynamics. The results show that the location of pressure booster in the pipeline between outlet of ejector and refrigerant inlet of the condenser contributes to decreasing boosted pressure and power and increasing product exergy efficiency. The EHE-MF has higher thermodynamic performance, and its system configuration is optimal from the perspective of thermodynamics.

Keywords: System configuration; Regulating characteristics; thermodynamic performance; Industrial waste heat; District heating; Enhanced ejector heat exchanger