

Accepted Manuscript

Research Paper

Performance enhancement of a baffle-cut heat exchanger of exhaust gas recirculation

E. Jiaqiang, Dandan Han, Yuanwang Deng, Wei Zuo, Cheng Qian, Gang Wu, Qingguo Peng, Zhiqing Zhang

PII: S1359-4311(17)37240-X

DOI: <https://doi.org/10.1016/j.applthermaleng.2018.01.109>

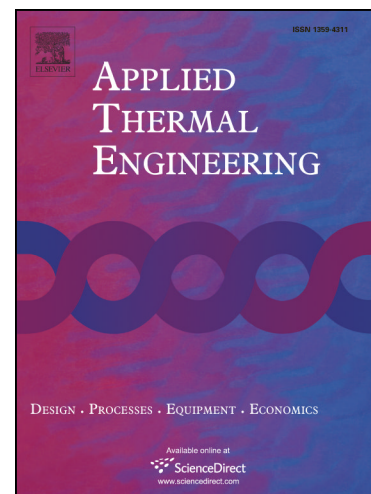
Reference: ATE 11763

To appear in: *Applied Thermal Engineering*

Received Date: 12 November 2017

Revised Date: 25 January 2018

Accepted Date: 28 January 2018



Please cite this article as: E. Jiaqiang, D. Han, Y. Deng, W. Zuo, C. Qian, G. Wu, Q. Peng, Z. Zhang, Performance enhancement of a baffle-cut heat exchanger of exhaust gas recirculation, *Applied Thermal Engineering* (2018), doi: <https://doi.org/10.1016/j.applthermaleng.2018.01.109>

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

Performance enhancement of a baffle-cut heat exchanger of exhaust gas recirculation

Jiaqiang E^{a, b, c}, Dandan Han^{a, b}, Yuanwang Deng^{a, b, c, *}, Wei Zuo^{a, b}, Cheng Qian^c, Gang Wu^d,
Qingguo Peng^{a, b}, Zhiqing Zhang^{a, b}

a. State Key Laboratory of Advanced Design and Manufacturing for Vehicle Body, Hunan University, Changsha, 410082, China;

b. College of Mechanical and Vehicle Engineering, Hunan University, Changsha, 410082, China;

c. Mechanical and Electrical Engineering College, Jiaxing University, Zhejiang Jiaxing, 314001, China;

d. College of Automotive and Mechanical Engineering, Changsha University of Science and Technology, 410114, Changsha City, Hunan, China;

e. Institute of New Energy and Energy-Saving & Emission-Reduction Technology, Hunan University, Changsha, 410082, China

*dengyuanwang@hnu.edu.cn

Abstract: In present investigation, a 3D numerical simulation of a baffle-cut heat exchanger of exhaust gas recirculation (EGR) in diesel engine is used to investigate its flow field and heat transfer characteristics at three different part loads. Firstly, an original shell-and-tube heat exchanger with different EGR rates is simulated as reference for latter comparisons. Then, some baffle-cut heat exchanger models with differently adjacent baffles cut in every model but same overall baffle cuts are made. Afterwards, these new ones are simulated with same conditions of original one to facilitate comparisons. The Nu/P_p is the ratio of Nu to pump power. It's taken as one evaluation criterion to indicate comprehensive performance enhancement of new models which is increased with the increase of EGR rates and higher than original one.

Key words: Baffle-cut heat exchanger; Baffle cuts; Baffle arrangements; Heat transfer

Download English Version:

<https://daneshyari.com/en/article/7045775>

Download Persian Version:

<https://daneshyari.com/article/7045775>

[Daneshyari.com](https://daneshyari.com)