IJARSCT
ISSN (Online) 2581-9429
International Journal of Advanced Research in Science, Communication and Technology (IJARSCT)
International Open-Access, Double-Blind, Peer-Reviewed, Refereed, Multidisciplinary Online Journal
Impact Factor: 7.301
Volume 3, Issue 2, May 2023

Design and Performance Analysis of an Air-Powered Engine using Pneumatic Cylinder

Ajit Ramdas Divekar, Rohan Arun Wagh, Pranjali Yogesh Gaikwadm Avinash Borse
Prof. Yogesh K. Mogal
Matoshri College of Engineering & Research Centre, Eklahare, Nashik, Maharashtra, India

Abstract: *The Air Car machine system is a promising technology for sustainable transportation, offering a clean and affordable alternative to conventional gasoline and diesel vehicles. The concept of an air car has been around for many years, but its implementation remains challenging due to the difficulty in storing compressed air, the need for efficient energy conversion, and the limited range of travel. This paper provides an overview of the current state of air car technology, discussing the various approaches taken to address these challenges, such as hybrid systems that combine compressed air and gasoline engines, and electric motors. The paper also presents a review of recent research and development efforts aimed at improving the efficiency, safety, and performance of air car technology. Additionally, the paper examines the potential benefits and drawbacks and construction of air car technology, including its environmental impact, cost-effectiveness, and feasibility in different regions and markets. Finally, the paper offers insights into future directions for air car research and development, highlighting the need for more advanced materials and manufacturing techniques, innovative energy storage solutions, and effective public policies to promote the adoption of air car technology.*

Keywords: Air car, Compressed air, Alternative fuel vehicles, Environmental impact

REFERENCES

[1]. D. Marvania, S. Subudhi, A comprehensive review on compressed air powered engine, Renew. Sustain. Energy Rev. 70 (2017) 1119–1130.
[2]. Y. Fang, Y. Lu, X. Yu, A.P. Roskilly, Experimental study of a pneumatic engine with heat supply to improve the overall performance, Appl. Therm. Eng. 134 (2018) 78–85
[3]. S. Robertson, A Brief History of Air Cars, 2015.
[4]. H. Liu, Y. Chen, G.L. Tao, G.Z. Jia, W.H. Ding, Research on the displacement and stroke-bore ratio of the air-powered engine, in: Proceedings of the Sixth
[5]. Y. Chen, H. Liu, G.L. Tao, Simulation on the port timing of an air-powered engine, Int. J. Vehicle Des. 38 (2005) 259–273.
[6]. X.-H. Nie, X.-L. Yu, Y.-D. Fang, P.-L. Chen, Experiment research on pneumatic diesel hybrid engine based on cooling water energy recovery, NeiranjiGongcheng/Chin. Internal Combust. Engine Eng. 31 (2010)
[7]. D.A. Carbot-Rojas, R.F. Escobar-Jim´enez, J.F. Gomez-Aguilar, ´ A.C. T´ellezAnguiano, A survey on modeling, biofuels, control and supervision systems applied in internal combustion engines, Renew. Sustain. Energy Rev. 73 (2017) 1070–1085.
[8]. K.D. Huang, K.V. Quang, K.T. Tseng, Study of the effect of contraction of crosssectional area on flow energy merger in hybrid pneumatic power system, Appl. Energy 86 (2009) 2171–2182
[9]. X.-H. Nie, X.-L. Yu, P.-L. Chen, Y.-D. Fang, Theoretical analysis of available energy and efficiency in liquid nitrogen engine cycle, Zhejiang DaxueXuebao (Gongxue Ban)/J. Zhejiang Univ. (Eng. Sci.) 44 (2010) 2159–2163+202
[10]. H. Ibrahim, R. Younes, T. Basbous, A. Ilinca, M. Dimitrova, Optimization of diesel engine performances for a hybrid wind-diesel system with compressed air energy storage, Energy 36 (2011) 3079–3091.