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Design and performance test of a compressed air operated reciprocating machine (Article)

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Abstract

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Renewable energy is an environmental friendly source of energy around the world and fossil fuel sources are the main polluting factor for global climate change. The fossil fuel reserves decreased day by day which creates environmental hazardous pollutants. Fossil fuel reserved crisis leads the researchers to find out alternative sources of energy which should be alternative solution of fossil fuel energy. In this research air compressed engine which is run by compressed air by modifying a 4-stroke petrol engine (IC engine) into two stroke air compressed piston engine where air compressor acts as a fuel source. The experimental results shows a promising maximum efficiency percentages of 53.42, 35.6, 30.4, 26.67 and 23.60 under 2 to 4.5 bar pressure with maximum load condition. © BEIESP.

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(2015) ARPN Journal of Engineering and Applied Sciences
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Shaw, D. , Dai, S.C.
(2018) IOP Conference Series: Earth and Environmental Science
- Development of miniature compressed air storage system using solenoid valves for dynamic pneumatic actuator
Najmuddin, W.S.W.A. , Mustafa, M.T. , Awang, A.H.
(2018) Journal of Telecommunication, Electronic and Computer Engineering

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- ☐ 2 Patel, B.
Air powered engine
(2011) National Conference on Recent Trends in Engineering&Technology, India. Cited 3 times.

- ☐ 3 Seela, C.R., Raoa, D.V., Raoa, M.V.
(2013) Performance Analysis of an Air Driven Engine Modified from SI Engine. Cited 2 times.

- ☐ 4 Wang, Y.-W., You, J.-J., Sung, C.-K., Huang, C.-Y.
The applications of piston type compressed air engines on motor vehicles (Open Access)

(2014) Procedia Engineering, 79, pp. 61-65. Cited 9 times.
<http://www.sciencedirect.com/science/journal/18777058>
doi: 10.1016/j.proeng.2014.06.311

View at Publisher

- ☐ 5 Huang, C.-Y., Hu, C.-K., Yu, C.-J., Sung, C.-K.
Experimental investigation on the performance of a compressed-air driven piston engine (Open Access)

(2013) Energies, 6 (3), pp. 1731-1745. Cited 31 times.
<http://www.mdpi.com/1996-1073/6/3/1731/pdf>
doi: 10.3390/en6031731

View at Publisher

- ☐ 6 Yu, Q.
Optimization of the Energy Efficiency

- ☐ 7 Arjit, M., Darshika, B., Gupta, N.
(2014) Two Stroke Engine Working on the Design of a Four Stroke Petrol Engine, 3 (4).

- ☐ 8 Mistry Manish, K.
(2012) Sorathiya Arvind Study and Development of Compressed Air Engine Single Cylinder 'An Experiment Set Up, 1 (3).

- ☐ 9 Creutzig, F., Papson, A., Schipper, L., Kammen, D.M.
Economic and environmental evaluation of compressed-air cars (Open Access)

(2009) Environmental Research Letters, 4 (4), art. no. 044011. Cited 29 times.
<http://www.iop.org/EJ/journal/1748-9326>
doi: 10.1088/1748-9326/4/4/044011

View at Publisher

- ☐ 10 Aziz, M.A.
(2006) Design and Development of a Compressed Air Machine Using a Compressed Air Energy Storage System. Cited 2 times.
-

- ☐ 11 Higashi, K.
(2009) Wankel Rotary Engine. Cited 2 times.
Google Patents
-

- ☐ 12 Szoka, W., Szpica, D.
Adaptation of classic combustion engines to compressed air supply

(2012) Acta Mechanica et Automatica, 6 (1), pp. 68-73. Cited 2 times.
http://www.acta.mechanica.pb.edu.pl/volume/vol6no1/SZOKA_SZPICA_EN_2011_111.pdf
-

- ☐ 13 Yu, Q., Shi, Y., Cai, M.
Working characteristics of variable intake valve in compressed air engine (Open Access)

(2014) Scientific World Journal, 2014, art. no. 498934. Cited 2 times.
<http://www.hindawi.com/journals/tswj/>
doi: 10.1155/2014/498934

View at Publisher
-

- ☐ 14 Jia, B., Wu, D., Smallbone, A., Lawrence, C., Roskilly, A.P.
Design, modelling and validation of a linear Joule Engine generator designed for renewable energy sources

(2018) Energy Conversion and Management, 165, pp. 25-34. Cited 6 times.
doi: 10.1016/j.enconman.2018.03.050

View at Publisher
-

- ☐ 15 Khurmi, R., Gupta, J.
(2008) A Textbook of Thermal Engineering. Cited 5 times.
Mechanical Technology, S. Chand
-

- ☐ 16 Zhang, C., Yan, B., Wieberdink, J., Li, P.Y., Van De Ven, J.D., Loth, E., Simon, T.W.
Thermal analysis of a compressor for application to Compressed Air Energy Storage

(2014) Applied Thermal Engineering, 73 (2), pp. 1402-1411. Cited 32 times.
<http://www.journals.elsevier.com/applied-thermal-engineering/>
doi: 10.1016/j.applthermaleng.2014.08.014

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-

- ☐ 17 Li, Y., Wang, X., Li, D., Ding, Y.
A trigeneration system based on compressed air and thermal energy storage

(2012) Applied Energy, 99, pp. 316-323. Cited 78 times.
<http://www.elsevier.com/inca/publications/store/4/0/5/8/9/1/index.htm>
doi: 10.1016/j.apenergy.2012.04.048

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-

- ☐ 18 Mattarelli, E., Rinaldini, C.A., Cantore, G.
(2013) Advances in the Design of Two-Stroke, High Speed, Compression Ignition Engines. Cited 2 times.
INTECH Open Access Publisher

-
- 19 Akhtar, N., Chopra, M.
Experimental investigation of conversion of 4-stroke si engine into compressed air engine”
(2018) International Journal of Current Research in Life Sciences, 7 (2), pp. 1112-1116.

-
- 20 Azizi, M.A., Brouwer, J.
Progress in solid oxide fuel cell-gas turbine hybrid power systems: System design and analysis, transient operation, controls and optimization

(2018) Applied Energy, 215, pp. 237-289. Cited 21 times.
<http://www.elsevier.com/inca/publications/store/4/0/5/8/9/1/index.htm>
doi: 10.1016/j.apenergy.2018.01.098

[View at Publisher](#)

-
- 21 Ma, Y., Ni, Y., Zhang, H., Zhou, S., Deng, H.
Influence of valve's lag characteristic on pressure pulsation and performance of reciprocating multiphase pump

(2018) Journal of Petroleum Science and Engineering, 164, pp. 584-594. Cited 5 times.
<http://www.sciencedirect.com/science/journal/09204105/81>
doi: 10.1016/j.petrol.2018.02.007

[View at Publisher](#)

-
- 22 Kumar, N.
Compressed Air Retrofit Kit for Existing Motor Vehicles
(2013) Proceedings of the World Congress on Engineering

-
- 23 Shaw, D., Yu, J.-J., Chieh, C.
Design of a hydraulic motor system driven by compressed air ([Open Access](#))

(2013) Energies, 6 (7), pp. 3149-3166. Cited 18 times.
<http://www.mdpi.com/1996-1073/6/7/3149/pdf>
doi: 10.3390/en6073149

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