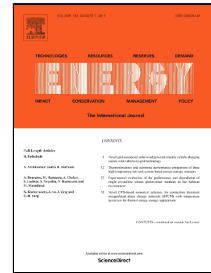


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Dynamic balancing and experience during the development of a single cylinder Beta-configuration Stirling engine using rhombic drive

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Dynamic balancing and experience during the development of a single cylinder Beta-configuration Stirling engine using rhombic drive

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Abstract

The present work starts with analysis, and culminates in the development of engine. Hydrogen is selected as working fluid due to its favorable thermodynamic and thermo-physical properties. During fabrication and sub-assembly engine was run by electrical motor as in motoring test. It provided cooling at the cylinder head and confirmed that all the system components were performing well under low charge pressure. Dynamic balancing analysis is done to eliminate unbalanced couple. The same was included in the system by removal of pre-decided part of the gears which also acted as the flywheel. The engine performance was demonstrated by operating the centrifugal pump. LPG burner assembly designed, especially for this Stirling engine, is successfully demonstrated. Preliminary trials for approximately 3-5 minutes, with loading condition in engine mode, with LPG were conducted. The flame temperature near the cylinder head was maintained at about 1100 K. It needs to be ensured that uniform but sufficient heat input should be provided. In short, an experimental set-up is built in accordance with geometrical dimensions specified in the theoretical design. Theoretically predicted performance and

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