INTERNAL COMBUSTION ENGINE WITH COMBINED VALVE FOR BOTH INTAKE AND EXHAUST

ONDŘEJ BOLEHOVSKÝ
Czech Technical University in Prague, Faculty of Mechanical Engineering, Technická 4, 166 07, Prague 6, Czech Republic
ondrej.bolehovsky@fs.cvut.cz

ABSTRACT
This work concerns the computer simulation of an unconventional 4-stroke cycle engine in a commercial 1-D code. The engine uses only one valve for both intake and exhaust. This brings some benefits, but also gives rise to some problematic issues. The aim of this study is to assess the potential of such an engine by comparing it with an engine that uses a conventional multi-valve cylinder head. Supercharging by means of exhaust gas pressure pulses in a multi-cylinder layout is investigated. Utilization of such an engine as a range extender unit for electric vehicles is assessed.

KEYWORDS: UNCONVENTIONAL 4-STROKE ENGINE, RING-SHAPED VALVE, SINGLE VALVE, SUPERCHARGING BY EXHAUST GASES, TUNED EXHAUST MANIFOLD, 1-D MODEL

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