THE METHOD OF ESTIMATING THE EXERGY LOSSES EXHAUST GASES IN THE EXHAUST TRACT RECIPROCATING INTERNAL COMBUSTION ENGINES

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There is developed a method for determine the exergy losses, exergetic efficiency and exergy criteria exhaust tract of the internal combustion engine, which allows to estimate the efficiency of passing the exhaust gas tract taking into account all kinds of losses.

Modern method of thermodynamic analysis, which is becoming more and more popular currently is the exergy analysis. Through this analysis it is possible to perform a comprehensive assessment as one component, and for the totality of the investigated components of the engine with all kinds of losses.

The aim of the work is to develop the methods of exergy analysis and the determination of energy loss of the exhaust gas in the exhaust tract of the engine. Developed a method to determine the exergy losses, exergetic efficiency and exergy criteria exhaust tract of the internal combustion engine, which allows to estimate the efficiency of passing the exhaust gas tract with all kinds of losses. The method of exergy analysis gas tract of the internal combustion engine, taking into account all types of energy losses on the specified plot gives a possibility to determine the degree of irreversibility of the actual process in the component gas tract without examining the cycle of the engine as a whole.

Defined exergetic criteria that indicate significant losses associated with gas-dynamic resistance and heat transfer with the environment. Also significant are the

destruction of exergy due to the irreversibility of the process throttling component and the expansion of gases in the component b.

Further improvement gas tract, possibly by reducing exergy losses by optimum design of the path (with minimum gas-dynamic resistance and improve its thermal insulation

Thus, the developed method of calculation of the exergy losses in gas paths internal combustion engine, which enables the calculations of these losses and to perform optimal design of circuits to ensure minimization of energy losses. In the work described exergetic criteria for use in the calculations allows to draw conclusions about finding ways to improve the tract as a whole.