

Pulsating combustion of gas fuel in the combustion chamber with closed resonant circuit

Yallina E., Larionov V., Iovleva O.

Kazan Federal University, 420008, Kremlevskaya 18, Kazan, Russia

Abstract

In the combustion chambers of the pulsation of gas flow oscillation greatly accelerate heat dissipation to the walls of the combustion chamber and improve combustion efficiency as compared with a uniform combustion mode. This allows you to effectively solve a number of problems of industrial power, including an environmentally friendly combustion products. Significant drawback of such systems-the emitted noise exceeding the permissible requirements. One solution to this problem-the separation of the resonance tube into 2 parts connected at the output to the interference of sound waves. The results of theoretical studies pulsating combustion technical mixture of propane in the system, consisting of a combustion chamber and two resonance tubes forming a closed resonant circuit. Resonators have a variable length. Calculations have shown that under certain oscillation of the resonator length to the first resonant frequency of the system is achieved by reducing SPL more than 15 dB. For oscillations at a second resonant frequency is the complete elimination of noise while maintaining intense oscillations in the combustion chamber. © Published under licence by IOP Publishing Ltd.

<http://dx.doi.org/10.1088/1742-6596/479/1/012017>
