
Numerical study of the operating condition effect on the thermal state of the structure of low thruster on oxygen-methane propellant operating in pulsed mode

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The article investigates the operating condition effect on the thermal state of the structure elements of the model low thruster on oxygen-methane propellant operating in pulsed mode using the unsteady-state conduction equations. The values of the maximum wall temperature on the inner nozzle surface in the area of the critical section are considered at various thruster operating conditions. Approximating multiparameter dependence allowing determining the maximum temperature in the model low thruster structure for different values of combustion chamber pressure, the ratio of components, turn-on frequency and completion factor of pulse mode operation is obtained.

Keywords: rocket engine, low thrust, pulse mode, thermal state, modeling.

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