Numerical simulation of the thermal state of athodyd inlet parts

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In this paper specifics of high-speed flows computations are investigated. The verification of program FloEFD by solving test problem is realized. The comparison of numerical simulation results with data based on approximating equation solution is done. The estimation of catalytic activity influence on heat exchange parameters is given. The choice of simplified radiation model is established. The numerical solution of Navier-Stokes equations for the supersonic flow in athodyd inlet is realized. The main flow parameters for typical inlet components are obtained. The comparison of shock waves obtained from the numerical solution with results of isentropic flow theory is done. The distribution of convective heat flow is calculated.

Keywords: *numerical simulation, athodyd, heat flow, shock wave, FloEFD.*

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