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DECELERATION OF SUPERSONIC FLOW THROUGH AXISYMMETRICAL VARIABLE-FORM CHANNEL

The problem of the effects of the backpressure on the supersonic flow pattern through divergent axisymmetric channel in its deceleration is examined. The applied directivity of the problem is characterized by selecting rational parameters of a passage of ramjets. The results are obtained on a basis of a numerical solution of the 2D system of the Navier-Stocks equations. The subsequent reconstruction of the flow pattern through constitutive channel (cylinder- divergent cone-cylinder) with an increased backpressure is illustrated. The near-wall zone of a recirculation flow is formed in certain values of the backpressure at a divergent conic section, and the flow through constitutive channel is similar to the flow through cylinder channel with zero friction.

Keywords: backpressure, structure of supersonic flow, divergent axisymmetric channel, numerical solution of 2D axisymmetric system of Navier-Stokes equations, zone of recirculation flow.

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