FM5S_10453

XXI International Congress of Theoretical and Applied Mechanics
Warsaw, Poland, August 15–21, 2004

Pulsations of Pressure at a Cylinder in a Subsonic Stream of Gas.

Alexander Shvets

Moscow State University, Institute of Mechanics, Moscow, Russia

The distribution of root-mean-square values and spectral characteristics of pulsations of pressure at a cross flow of the cylinder in a subsonic stream of gas (M = 0.44–0.88) are investigated. At small subsonic speed (M = 0.44) there are two field of the increased root-mean-square value of pulsations of pressure ($\varphi = 50$–120°) owing to initial and rear separates a boundary layer, at big subsonic speed (M = 0.88) – on a field $\varphi = 90^\circ$ – owing to formation of a local supersonic zone with closing shockwave. At spreading a stream from a forward point speed is increased, that is accompanied by decrease of frequencies of pulsations. In a range of small subsonic speeds decrease of numbers Sh is observed at values of angle $\varphi = 40$–60°. At M = 0.54 frequencies rais up to $\varphi = 120$, then are a little bit reduced, and at M = 0.9 the increase of frequencies up to a back point of the cylinder is observed.

View the extended summary