FLOW OF A NON-NEWTONIAN SECOND-ORDER FLUID BETWEEN TWO ENCLOSED COUNTER TORSIONALLY OSCILLATING DISC

K. R. SINGH, V.K.AGRAWAL & AMIT SINGH

Abstract

The problem of the flow of an incompressible non-Newtonian second-order fluid between two enclosed counter torsionally oscillating discs has been discussed. The flow functions H,G,L and M are expanded in the powers of the amplitude _ (taken small) of the oscillations. The steady and unsteady parts of radial, transverse and axial velocities have been calculated successfully. The behaviours of the radial, transverse and axial velocities at different values of Reynolds number R, phase difference _ and second-order parameters _1, _2 has been studied and shown graphically. The transverse shearing stress and moment on the lower and upper discs have also been obtained.