

On the energetic balance for the flow of a Maxwell fluid due to a constantly accelerating plate

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Summary. Dissipation, the power due to the shear stress at the wall and the boundary layer thickness for the motion of a Maxwell fluid, induced by a constantly accelerating plate, are established in exact and approximate forms. The similar solutions for Newtonian fluids, performing the same motion, are obtained as limiting cases of our solutions. In comparison with the Newtonian model, the dissipation and boundary layer thickness decrease.

Keywords: Maxwell fluid, Kinetic energy, Dissipation, Power of the shear stress at the wall, Boundary layer thickness.