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Magnetohydrodynamics effect on three-dimensional viscous incompressible flow between two horizontal parallel porous plates and heat transfer with periodic injection/suction.

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Summary: We investigate the hydromagnetic effect on viscous incompressible flow between two horizontal parallel porous flat plates with transverse sinusoidal injection of the fluid at the stationary plate and its corresponding removal by periodic suction through the plate in uniform motion. The flow becomes three dimensional due to this injection/suction velocity. Approximate solutions are obtained for the flow field, the pressure, the skin-friction, the temperature field, and the rate of heat transfer. The dependence of solution on M (Hartmann number) and λ (injection/suction) is investigated by the graphs and tables.

MSC:

76W05 Magnetohydrodynamics and electrohydrodynamics
76D05 Navier-Stokes equations for incompressible viscous fluids

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