By taking into account the effect of a global magnetic field and its corresponding heating, we determine the thickness of advection-dominated accretion flows. We consider an axisymmetric, rotating, steady viscousresistive, magnetized accretion flow under an advection-dominated stage. The dominant mechanisms of energy dissipation are assumed to be turbulence viscosity and magnetic diffusivity. We adopt a self-similar assumption in the radial direction to obtain the dynamical quantities, i.e. radial, azimuthal, sound and Alfven velocities. Our results show that the vertical component of magnetic force acts in the opposite direction to gravity and compresses the disc; thus, compared with the non-magnetic case, in general the disc half-thickness, , is significantly reduced. On the other hand, two parameters that appear due to the action of the magnetic field and reaction of the flow affect the disc thickness.