

Abstract: A set of reduced MHD equations is derived using the equation of state including plasma compressibility. By applying assumption of pressure, i.e., $R^2P = \text{const.}$, a set of reduced magnetohydrodynamic equations for toroidal plasmas are obtained for large aspect ratio, high β tokamaks. These equations include all terms of the same order as the toroidal effect and only involve three variables, namely the flux, stream function and pressure.