

Title: Steady state thermal analysis of disc brakes

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Abstract: The disc brakes are used for stopping or deceleration the wheel's rotation. Braking is a process which helps in dissipation of kinetic energy in the form of heat by converting it to mechanical energy. A brake disc, connected to wheel or axle, is made up of composites of ceramics or cast iron. Brake pads that acts as friction material and mounted on brake calliper is forced hydraulically, pneumatically, mechanically or electromagnetically to stop the wheel. This research deals with the modelling and analysis of disc brakes using Solid-Works 2014 and Ansys-14. Pro-E is used for the preparation of FEA models and ANSYS is used for simulation, based on the finite element method (FEM). In this research Thermal analysis is carried out for the application of braking force because of friction on disc brakes (or Rotor).

Keywords: Disc brakes, thermal analysis, FEA, Ansys, Solidworks, modelling, calliper, brake pads.