

## **DESIGN AND FINITE ELEMENT ANALYSIS OF DISC BRAKE**

**RAJENDRA POHANE AND R. G. CHOUDHARI**

### **Abstract**

Repetitive braking of the vehicle leads to heat generation during each braking event. The resulting rise in temperatures has very significant role in the performance of the braking system. Passenger car disc brakes are safety – critical component whose performance depends strongly on contact conditions at the pad to disc interface. During braking both brake pad & disc surface is worn. The objective of the paper is to study disc brake system, to simulate disc brake assembly and to prepare the FEM model for contact analysis. A three dimensional finite element model of the brake pad and the disc is developed to calculate static structural analysis, and transient state analysis. The comparison is made between the solid and ventilated disc keeping the same material properties and constraints and using general purpose finite element analysis. This paper discusses how general purpose finite element analysis software can be used to analyze the equivalent (von-mises) stresses& the thermal stresses at disc to pad interface

-----  
**Keywords:** Disc brake, finite element analysis, ventilated disc, static structural analysis.