

Thermal Effects of Disc Brake Rotor Design for Automotive Brake Application

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Abstract : The disc rotor is solid, ventilated or drilled. The ventilated type disc rotor consists of a wider disc with cooling fins cast through the middle to ensure good cooling. The disc brakes use pads that are pressed axially against a rotor or disc. Solid and ventilated disc design are same which it free with any form, unless inside the ventilated disc has several ventilation holes. Different with drilled disc has some construction on the surface which is has six lines of drill hole penetrate the disc and a little bit deep twelve curves. From the thermal analysis that was conducted by using ANSYS Software, temperature distribution and heat transfer rate on the disc were obtained on each design. Temperature occurred on the drilled disc was lowest than ventilated and solid disc, it is 66% better than ventilated while ventilated is 21% good than solid disc.

Keywords : disc brakes, drilled disc, thermal analysis, ANSYS software

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