

Presented Paper at SAE 2006 World Congress

We presented a new paper at SAE 2006 World Congress on April 4, 2006. This is our first presentation in SAE World Congress, while we have presented papers three straight years from 2003 at SAE Annual Brake Colloquium and Exhibition.

1. TITLE

Integrated Brake Disc Design System

Paper No. 2006-01-0693

2. AUTHORS

Hiroyuki YUMOTO
Toshikazu OKAMURA

3. ABSTRACT

We have constructed an original brake disc design system by standardizing, automating, and speeding up each design process. This system consists of two steps. In the first step, a designer, without professional knowledge or skills regarding CAE, can easily carry out FEA by manipulating pull-down menus, parametric design, and automated modeling and meshing. Further, our new computer program automatically identifies each eigenmode. It takes less than two hours for a complete FEA of a new design. In the second step, the developed postprocessor makes it easier and faster to compare the simulated results of many design alternatives and determine the optimum solution.

Through the accumulation of vast numbers of FEA cases and tests for validation, we have obtained the knowledge of the effects of disc configurations, dimensions, and material properties on resonant frequencies and thermal deflections. As a result, we can now release CAD data of a new brake disc in only two days from scratch and provide the highest design quality by making the best of classical FEA methodology.

4. CONTACT

Hiroyuki YUMOTO	Development Department
E-mail: h-yumoto@kiriu.co.jp	
TEL: +81-284-62-9211	FAX: +81-284-64-1404