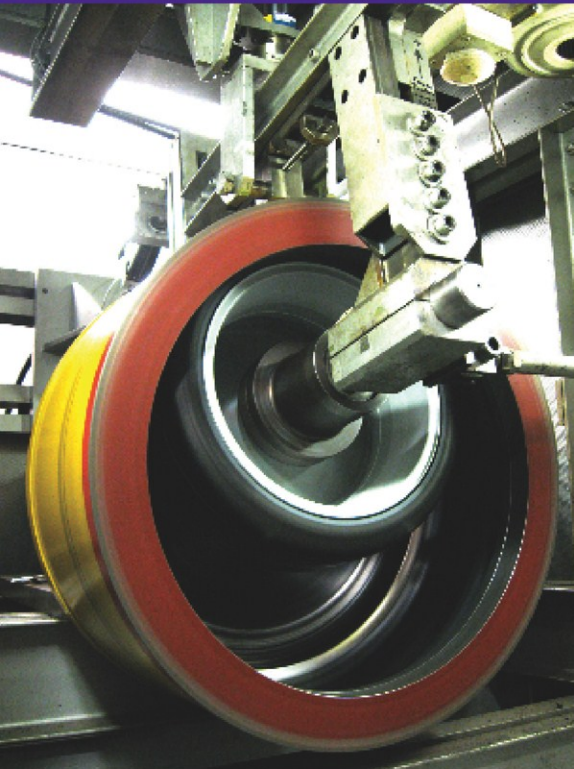


Biaxial Wheel Testing Accelerated by Closed Loop Control

At a Glance

- **Project:** Automotive Wheel Testing
- **Company:** Innkeeper LLC
- **Location:** Redford, Michigan
- **Challenges:** Retrofit a testing system to recreate the most stressful driving conditions on the wheel being tested.
- **Solution:** RMC151E multi-axis motion controller
- **Benefits:** Biaxial wheel testing in the laboratory allows for optimized design, materials and manufacturing processes.



Summary:

Structural durability testing in the laboratory reproduces damage and wear that happens in real life. Using Delta's motion controllers helped Innkeeper, LLC become an industry leader when Innkeeper engineered a complete control retrofit of their old testing system to recreate the most stressful driving conditions on wheels early in the development process.

Challenge:

To retrofit an old, uncompetitive wheel testing machine with state of the art control and data acquisition, while using existing test methods and applying new testing techniques. Simultaneous application of lateral and radial forces was desired, while keeping the testing system flexible enough to meet the testing needs of automakers as they produce new designs. Another significant challenge was to meet the customer's need for price / performance.

Solution:

The RMC151E multi-axis Electro Hydraulic motion controller by Delta Computer Systems helps to provide reliable, critical Ethernet communication plus dual closed loop position and force control to apply radial and lateral (biaxial) hydraulic forces to the wheel that is spinning at freeway speeds inside a revolving drum; while providing the right balance between cost, quality and performance. The controller communicates with a PC running LabView, enabling easy to use visual programming and monitoring of motion control applications.

Benefits:

By recreating the most stressful driving conditions on the wheels being tested, Innkeeper's machine is able to save time and cost by accelerating the wear and tear seen during a lifetime of road use. This retrofit system allows Innkeeper to offer their expertise with competitive multi-axes servo hydraulic testing, customized to their customer's needs.

"From a retrofit standpoint, the Delta controller is extremely cost effective. We estimate the retrofit was 25% of a new machine or what a custom designed system would have cost."

—Kevin Kretschmann, Innkeeper principal and co-owner