

# HOOSIER RACING TIRE CORPORATION

## Calender gauging system replacement delivers improved quality and productivity

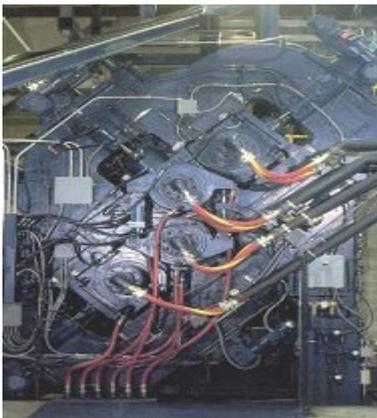


*“The performance we experienced from NDC’s Pro. Net Web Gauging System means we can produce quality tire calender fabric to within one thou, day in day out.”*

Jerry Mikesell  
 Custom Calendering,  
 Mixing & Specialty Tire Sales  
 Hoosier Racing Tire  
 Lakeville, IN

### Improvements:

- ▶ Increased line speed:  
~15%
- ▶ Reduced start up and code change times:  
~30-40%



### Hoosier Racing Tire Corporation

With more than 50 years in the racing tire business, Hoosier has established itself as a world leader in the manufacture of racing tires, materials and specialty compounds. Hoosier’s staff of rubber tire professionals are able to provide custom engineering, testing services and compound formulation for the production of their high-performance tires.

Using their advanced equipment, Hoosier can develop and test their new materials, including custom-calendering of various textile materials with their state-of-the-art 4 roll inclined “Z” textile calender.

### The Drive for Quality and Performance

Making tires that will run at speeds in excess of 180 miles per hour requires a great deal of know-how and advanced manufacturing equipment. With Hoosier’s tires expected to run at these speeds, nothing is compromised, especially safety.

So it’s no surprise that measurement and control of Hoosier’s tire fabrics represents a critical part of their manufacturing process. The tolerance for these tires is much tighter than for either passenger or off-road vehicles. So while their legacy web gauging system

was performing satisfactorily, it was now obsolete and Hoosier’s plans for improved quality and custom calendering meant they needed to replace this equipment.

Other factors such as the high cost of ownership of this legacy system and the risk of not being able to measure and control their products effectively also drove the replacement program.

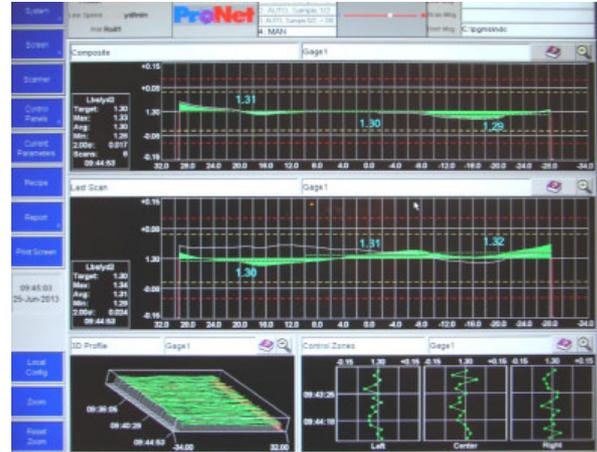
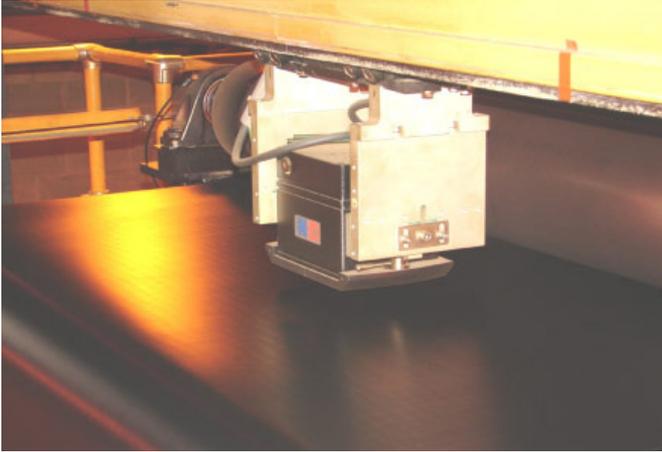
### Hoosier’s Inclined ‘Z’ Calender

The 4-roll calender includes cross-axis control on rolls 1 & 4, hydraulic roll bending on rolls 2 & 3 and individual AC screw motors on rolls 1, 2 & 4 for thickness profile control. Individual roll drive motors provide infinite friction ratios and includes automatic temperature control units for each roll. The calender can run fabrics from 30 inches to 59 inches wide.

### Selecting a New Web Gauging System

Hoosier Racing Tire Corp. were not newcomers to web gauging, having over twenty years experience with these systems. So they knew what they were looking for, such as:

- ▶ A state of the art system that is both reliable and



- easy to maintain. They found too many suppliers with platform technologies going back ten years or more.
- ▶ Experienced service support from a supplier that knew the tire calendering process.
  - ▶ An intuitive operator interface that was easy for the operators to use.
  - ▶ Improved quality and productivity using the latest measurements, controls and system platforms.

Hoosier selected NDC's Pro.Net 9000 Measurement and Control system because of its up-to-date technology. The system also includes a basis weight sensor and 3-zone control with gap and cross-axis. Also the availability of NDC's local Service and Applications expertise contributed toward the final decision. Hoosier said: "This system sold itself with its intelligent distributed architecture and ease of use".

According to Jerry Mikesell, the reliability of the Pro.Net 9000 system has been very good and Hoosier Tire has been able to maintain the system using their own technicians. Indeed, the plant is able to routinely load and manage their own specialized recipes into the system through the HMI without reverting to complex coded data tables.

**Installation and Commissioning**

This part of the project was a "nice job" according to Jerry. The professional, well-trained personnel from NDC worked closely with our Maintenance personnel to install the new system in a timely, efficient manner on the line.

Additionally, due to the specialized nature of this calender, Hoosier worked with NDC's engineers to develop an improved control strategy. This strategy helped drive the control to target more quickly, giving a fast recovery during start-up and code change. Once agreed upon, this modification to the control strategy took a relatively short period of time to

implement on site.

**Operator Acceptance**

The operators quickly accepted the new system and have utilized the new controls to the fullest. The controls are in continuous operation and can hold to within plus/minus one thousandths of an inch of spec. "day-in, day-out". As a measure of operator acceptance, they "love the system and wouldn't turn back if they had to".

**Results**

Since the installation and start-up of the NDC Pro.Net Measurement and control system, Hoosier was able to increase the maximum operating speed of their calender line by over 15%. In addition, the fast response of the controls has reduced start-up and code change times by 30-40%, improving quality and reducing scrap.

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