

Temposonics®

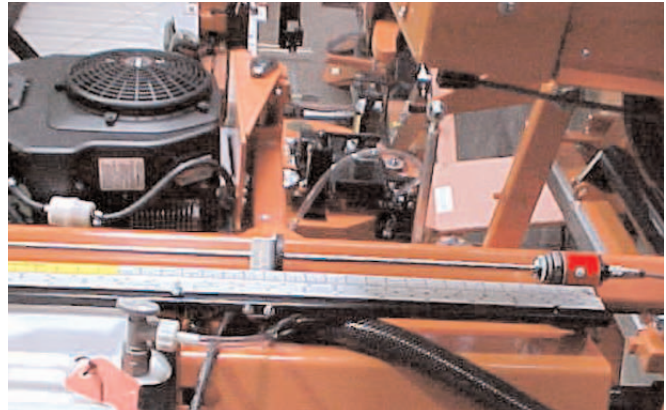
Magnetostrictive Linear-Position Sensors

Wood-Mizer's Cantilever Cutting Head Delivers
Accurate Cuts with a Magnetostrictive
Linear-Position Feedback Sensor



550968 A

Case Study



Temposonics LH sensor in operation on sawmill

The Application Problem

Wood-Mizer®, the number one seller of sawmills worldwide, created portable sawmills in 1982. At that time, Wood-Mizer was the only company to use a cantilever-cutting head for its sawmills. This feature was so crucial to making an accurate cut that the U.S. Patent Office issued Wood-Mizer a patent for its design. Wood-Mizer knows the importance of cutting logs accurately and also knows that all the components that make the bandmill run correctly also need to be accurate, reliable and durable.

In the mid 1990s, Wood-Mizer began designing a new control system which incorporated a linear-position feedback sensor to help automate the cut height adjustment. After several years of development, the company was still seeking an absolute linear-position sensor that could withstand operation in harsh outdoor environments. The sensor needed to operate in temperature ranges from -20° F to $+110^{\circ}$ F as well as operate in rain, snow and sleet while withstanding elements such as road salt, direct sun light, the shock and vibration from on and off-road traveling as well as electrical noise.

"Our customers are dropping 2,400 pound logs on these sawmills, not to mention pulling the sawmills behind pickup trucks everyday," said Mark Coose, Wood-Mizer's purchasing manager. "We needed a durable, accurate sensor that could withstand the shock and the constant vibration from normal wear on the sawmills."

The Solution

Through a joint effort with Larry Hartsock, MTS Sensors Division's local sales channel, Wood-Mizer selected a MTS L-Series sensor

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— the LH sensor with a 36" stroke — to solve the problem. This was the only sensor that passed the extensive field testing. Wood-Mizer customers are now able to operate with increased efficiency in less time to render all the lumber from a log — generating more lumber in less time.

This rod style position sensor with a large diameter magnet met every parameter needed for the job. The sensor:

- operates in broad temperature ranges
- withstands harsh weather elements
- withstands the build up and wash down of sawmill waste products
- withstands major shock and vibration
- is immune to electrical noise.

Sawmill workers load logs into the sawmill, which is pre-programmed to cut the logs to a certain thickness. The sensor has a Start/Stop output with 24 Vdc input power.

Originally, the board thickness (cut height) required the operator to read a high-quality yardstick with a moving cursor. However, the operators found this time-consuming and it often resulted in measurement errors. This type of reading also was dependent on the operator's height or even the operator's mood.

"These sawmills can be programmed to cut the logs using fractions or decimals," Coose added. "Our customers are always expecting us to improve the process, so our product's enhanced features allows us to achieve our customer's needs."



Wood-Mizer sawmill

The Solution

A cantilever design combined with accurate, durable position sensors ensures that the Wood-Mizer sawmills create better manufacturing precision and quality control than a conventional mill. Wood-Mizer mills have cut over one billion board feet of lumber. In many locations around the world, Wood-Mizer's sawmills are operated three shifts a day, seven days a week.



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