Linear Transducers Secures the Workflow in the Tire Industry

Tire manufacturing is a complex process in a highly competitive market. Tire manufacturers demand the highest productivity from their investments. To help accomplish this, tire machinery has focused on automation, to optimize production output, accuracy, reliability, and quality, while maintaining a safe working environment. A fault at any stage in the manufacturing process can result in scrap, or a tire that does not meet the manufacturer's specifications.

Problem

One critical step in the tire-making process involves the tire curing press. In a tire curing press, a green tire (a blank tire that is ready to be molded) is transferred into the press. As the mold closes and is locked into place, a bladder is inflated, causing the green tire to press up against the mold. During this step, an enormous amount of heat is applied, creating a chemical reaction between the rubber compounds and other materials. As the bladder expands, it presses the green tire up against the mold, creating the tread pattern and sidewall lettering.

This process creates heat and corrosive gases, that have proven to cause issues with some sensors, leaving the curing press with little or no position monitoring, and leading to product failure and expensive downtime.

Solution

Linear position sensors play an important role in factory automation. The sensors are simple to install, and easily set up to interface with the host controller. Once installed, the sensors provide accurate, and reliable absolute position feedback to help automate today's advanced machinery.

In tire manufacturing machinery, the Gemco 955 Brik provides the position feedback to help automate these sophisticated machines. The 955 Brik LDTs monitor and report back the position of the loading and unloading arms. They also control the position of the mold that is lowered onto the green tire. BRIK-style linear position sensors can be a cost-effective alternative to limit and proximity sensors and linear potentiometers.

Tire curing presses create tough working conditions for the sensitive electronic components inside a position sensor. Gemco has based its sensor design on decades of experience from applications like manufacturing, mining, and steel production. On the curing press, faulty measurements can be extremely expensive. Gemco linear displacement transducers provide tested, reliable accuracy.

Gemco rod-style LDTs are designed to be inserted into hydraulic cylinders, and to withstand the high pressures associated with those cylinders, and play an important role in the tire-making process. On a curing press, Gemco's 953 VMax LDT provides position feedback from the hydraulic cylinders to report the position of the cylinder that is used to expand the bladder inside of the green tire. Once the molding process is complete, the 955 BRIK provides feedback for unloading the finished tire and loading a new green tire.

Gemco 955 Series Linear Displacement Tranducers

Gemco 959CT Rod Style LDT

Gemco 953 VMax Rodstyle LDT

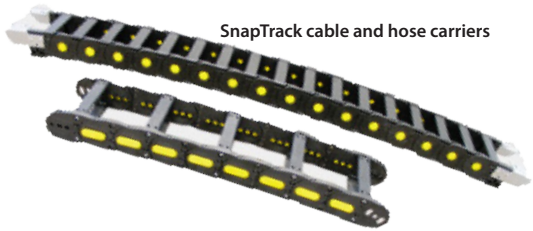
Gemco ReadySeries Ethernet Linear Position Sensor

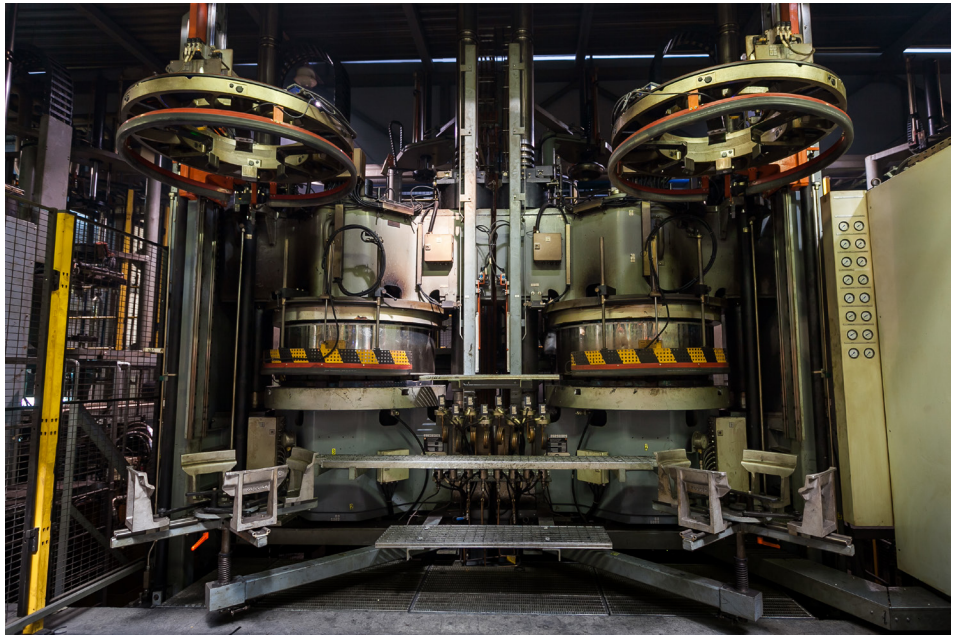
Benefits

AMETEK Factory Automation engineers draw on vast experience to create Linear Transducer solutions for the Tire & Rubber manufacturing industry.

- High shock & vibration tolerance
- Magnetostrictive technology is non-contact = reduced service needs
- Absolute position feedback
- Programmable Zero & Span
- Sensor length up to 300"
- Analog or digital output
- IP68 enclosure and extremely rugged construction

SnapTrack cable and hose carriers





Conclusion

For more than 50 years, AMETEK has designed and built linear transducers, Snaptrack, and CATRAC cable and hose carriers to meet the harsh environments found in the tire manufacturing industry.

Please contact our applications engineers for additional information, or to discuss your specific needs in detail.

AMETEK®
SENSORS, TEST & CALIBRATION