

HIGHEST PRECISION FOR HIGH-PERFORMANCE TIRES

TIRE PRODUCTION



PIRELLI ENSURES FLEXIBILITY AND PRODUCT QUALITY
IN TIRE BUILDING WITH SERVOLASER SYSTEMS BY LAP





“LAP SERVOLASERS are a perfect fit for our needs in terms of flexibility and product quality. Pirelli has relied on LAP’s laser positioning systems since the first product generation, and will continue to use them going forward.”

SVEN BECK
DIRECTOR OF CHANGE MANAGEMENT,
PIRELLI DEUTSCHLAND GMBH

THE PROJECT

Pirelli is a leader in the development and production of high-performance tires for vehicles in the premium and prestige market segments. Each year at its Breuberg location, Pirelli Deutschland GmbH produces around six million car tires for major international automotive manufacturers. The demands on the quality of Pirelli’s products are correspondingly high, as well as on the performance of its machines and machine components. At the same time, the production of small batches requires extraordinary flexibility. Precision, reliability, and flexibility in the tire building process were the key factors in Pirelli’s decision to integrate the third generation of movable SERVOLASERS by LAP in its VMI tire-building machines.

THE APPLICATION

“In our tire-building machines, the original first- and second-generation of LAP’s SERVOLASERS are giving dependable service for quality assurance,” says Sven Beck, Director of Change Management at Pirelli Deutschland. The positioning lasers have been successfully helping Pirelli maintain its high product quality for 20 years. When the time came for a machine upgrade, Pirelli decided to integrate the third generation, the SERVOLASER Xpert, in the Breuberg facility. The movable positioning systems ensure the precise positioning of the tire layers during tire building. Two laser lines are projected in parallel, marking the target position of the individual layers on the tire-building drum. The operator can ensure that the layers are applied in the exact positions, and correct them if necessary. The visual check makes errors instantly recognizable.

Pirelli can also quickly respond to the market needs. In that regard, Sven Beck notes: “To provide the version variety demanded by the market, we have to be flexible and reconfigure our machines frequently. Here again, the SERVOLASER is a great help.” The laser modules are controlled by the PLC of the tire-building machine. If the width of a layer changes, the PLC sends the new position to the SERVOLASER, and the laser modules reposition immediately. With the laser systems and their connection to the PLC, the tire manufacturer can react flexibly to any formulation change.

THE TECHNOLOGY

To take advantage of further benefits, Pirelli decided to integrate the SERVOLASER Xpert, thereby raising its machine equipment to the next technological level. Over 30 years of experience in the development and manufacture of laser projection systems have gone into the SERVOLASER Xpert. Thanks to continuous development, LAP now sets the world standard for quality assurance in tire production with the SLX. Its projection accuracy of ± 0.18 mm at a one-meter projection range is currently unmatched. SERVOLASER Xpert is fitted with green diode technology. Laser sources with green diodes have a service life equal to that of red diodes, but provide higher visibility to the human eye on black surfaces. This further minimizes errors, which improves process reliability in tire building. Pirelli has enjoyed a positive experience with LAP’s laser systems, and the company plans to continue using them. As machines are upgraded, they will be equipped with LAP’s third-generation positioning lasers.



Flexible manufacture: Pirelli produces a wide variety of tires in the same shift on the same tire-building machine.



SERVOLASER Xpert

- Moving range from 600 to 2,600 mm, also for larger tires like off-the-road (OTR) tires
- Straightforward integration/retrofit for nearly any machine
- Supports the world’s most common communication protocols (Ethernet/IOP, Profinet or Modbus TCP)
- Excellent visibility thanks to green laser diodes with over 30,000 h service life
- Dimmable laser brightness for even more precise control
- Line straightness ± 0.05 mm/m



Tire production with laser positioning systems from LAP at Pirelli in Breuberg



In use for over 20 years: first- and second-generation SERVOLASER with red laser diodes.



Changes by the minute: The precise positioning of each tire layer on the tire-building drum is checked using the laser lines. The green diodes of the latest SERVOLASER generation SLX provide even better visibility.

THE BENEFITS

INCREASED PROCESS RELIABILITY

- The highest tire-building precision

LOWER REJECTION RATE

- Faster error detection avoids costs

FLEXIBLE MANUFACTURE

- Quick reaction to market demands

ABOUT PIRELLI

Founded in 1872, today Pirelli is among the world's major producers of tires, and the only one focused solely on the consumer tire market, which includes tires for cars and motorcycles. With its high-end production excellence and passion for innovation, the company is an international leader in tire manufacture for the premium and prestige brand segments. Pirelli's extensive portfolio of over 2,400 tire models benefits from partnerships with leading premium and prestige automotive manufacturers.

www.pirelli.com

ABOUT LAP

LAP is one of the world's leading suppliers of systems that increase quality and efficiency through laser projection, laser measurement, and other processes. Every year, LAP supplies 1,5,000 units to customers in industries as diverse as radiation therapy, steel production, and composite processing. LAP has 350 employees worldwide at locations in Europa, USA and Asia.

www.lap-laser.com



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