YXLON

From Product Quality to Process Optimization

YXLON Y.MTIS

INLINE X-RAY INSPECTION SYSTEM FOR RADIAL TIRES

- Robust system for reliable 24/7 operation
- More than 350 systems in use worldwide
- Delivery of all relevant data for production process optimization
- Fast new product introduction with EasyTeach wizard
- Automatic x-ray image analysis powered by AI

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x-ray protection cabinet

operator station

statistics

loading arm

conveyor

tire ID

Specifications

	Y.MTIS PCR	Y.MTIS TBR
Tire width	100 - 400 mm / 4"- 15.5" (with UScan 3-L) 100 - 350 mm / 4"- 13.5" (with UScan 3-M)	100 - 508 mm / 4" - 20"
Tire inner diameter	13" to 26" tires 12" on request	13" to 26" tires
Max. tire weight	60 kg / 132 lbs	160 kg / 352 lbs
System dimensions	~ 4,800 mm x 5,100 mm x 2,700 mm	~ 5,400 mm x 5,100 mm x 2,700 mm
X-ray tube	100 kV / 300 W	100 kV / 300 W
Number of pixels	2469 (with UScan 3-L); 1819 (with UScan 3-M)	2469 (with UScan 3-L)
Pixel pitch	500 μm	500 μm
A/D converter	16 bit	16 bit

The four-spindle manipulation ensures for reliable
and repeatable inspection results.

Safe quality decisions with the exceptional image quality
of the Yxlon line detector Y.UScan3.

Rely on Y.MTIS to help you make safe quality decisions

WHEN MILLIMETERS MAKE THE DIFFERENCE
- 4-spindle tire manipulator proven in over 350 Y.MTIS systems worldwide.
- Vertical scan positioning ensures minimal deformation of the tire.
- Secure gripping assures repeatable positioning to the millimeter.
- Guaranteed accurate and reproducible inspection results.

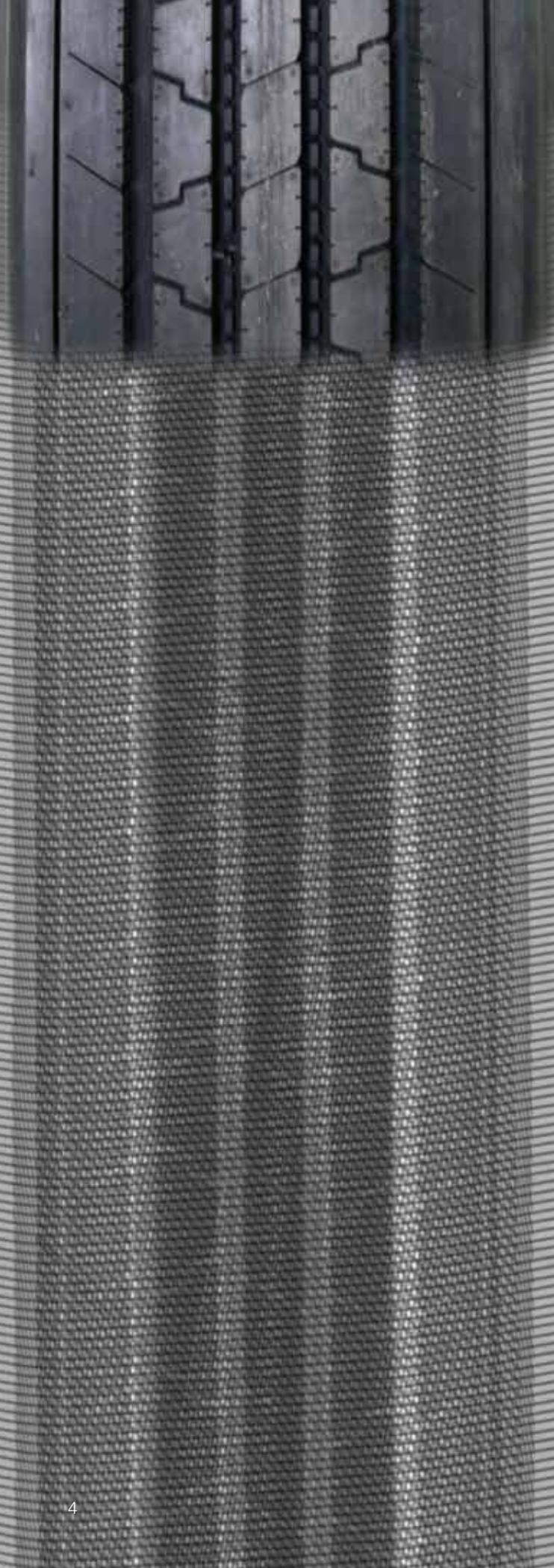**SAFE QUALITY DECISIONS THROUGH SOPHISTICATED TECHNOLOGY**
- Shielded x-ray source uniquely improved for Yxlon to provide extremely stable operation
- Exclusive line detector Y.UScan3 designed and manufactured by Yxlon International
- Best image quality with highest contrast supporting 75 m/min rotation speed
- Advanced image enhancement tools for visual inspection based on decades of experience

SAFETY FIRST
- Proven safety according to latest German radiation laws (StrlSchV)
- Compliant to the European machinery directive and optionally to local standards such as OHSA/UL
- Installation and commissioning by Yxlon's expertise
- State-of-the-art ergonomics

SEAMLESS INTEGRATION TO YOUR PRODUCTION LINE
- Standard conveyor interfaces
- MES connection interface
- Barcode reader solutions
- Site-specific integration support

Time and cost savings through Y.TireAXIS

RELIABLE RECOGNITION OF TIRE ANOMALIES ACCORDING TO YOUR QUALITY SPECIFICATION

X-ray operators have a challenging job as tire designs become more complex and quality specifications tighter. Y.TireAXIS supports your operators with objective feedback based on your quality requirements evaluating the whole tire image all at once, comprising:

Alignment and Consistency of Tire Components
- Belt centering, width, angle, and belt wander
- Correct position or height of turnup and chafer
- Offset splices in belts, chafer, and turnup
- Kinked beads and loose bead wires

Analysis of Steel Cords
- Cord spacing, including crossed and touching cords
- Wavy cords

Detection of
- Foreign material and air voids
- Object presence evaluation (e.g. RFID tags)

Accurate Measurements of Interior Structures

SUPERVISED OR FULLY AUTOMATIC INSPECTION

When using the **Supervised Automatic Mode,** Y.TireAXIS displays the automatic results along with the x-ray images providing a profound basis for the final decision made by the operator. On the one hand, the final evaluation made by a human expert still means a pillar of trust. On the other hand, a human decision can never be 100% objective and independent of his current condition.

Fully Automated Inspection with Y.TireAXIS is the next step to achieve objective, stable, and reliable inspection results and judgments inline the manufacturing process. Fully automated inspection saves time, and your skilled personnel is available for more demanding tasks. And what is more, the complete data set of every inspected tire is the crucial basis for optimizing your processes.

The **teaching process** was never as easy and fast as today. New enhanced training functions and intuitive wizards support the user to create inspection recipes and define the referring specifications. The introduction of new tires is no big deal anymore, and your experts can spend their time achieving improved product quality and increased yield.

Production process improvements with high-quality x-ray sensor data to be imported into your SPC system

From product quality
to process optimization with Y.TireAXIS

RELEVANT DATA OF EVERY TIRE
- 360° verification of the correct position of all steel components in the tire
- Data in real millimeter distances with patented 2.5D calibration
- Complete data sets provided to the statistical process control system

DATA ANALYSIS FOR PROCESS OPTIMIZATION
The MTIS system combined with Y.TireAXIS is probably the most comprehensive sensor in the factory. It provides a gapless data collection as basis for process optimization. This can be combined with sensor data from other process steps. With technology like artificial intelligence (AI) and machine learning (ML), tire manufacturers apply sophisticated data analysis tools to recognize trends being able to directly react and correct. This is the key to a smart factory and efficient production processes.

RELIABLE HIGH-QUALITY DATA SOURCE
- Fully automatic inline inspection of every tire
- Objective inspection results free of human bias
- Optimal basis for artificial intelligence with expert algorithms

ARCHIVING THE FULL DATA SETS
For decades, YXLON Y.MTIS has been the benchmark for the x-ray inspection of tires, both trucks and passenger cars. Besides objective inspection results and reliable quality assurance, the advanced Y.TireAXIS ADR software generates the full dataset of every inspected tire. This can be crucial for potential future failure analyses.

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Tire identification with Tire ID and tire sensors

Introducing new products at record speed

Not only is production getting faster and faster. The developments of new tire types have reached record levels too. Factories introduce new products into production on a weekly basis. What usually took hours in the past with parts of production at a standstill can now be done in less than 20 minutes. Assistants in Y.TireAXIS based on machine learning and artificial intelligence are a valuable time-saver that significantly increases the production efficiency.

- New product introduction in less than 20 minutes
- EasyTeach workflows with wizards from machine set-up to automatic image analysis
- AI-driven parameter optimizer for Y.TireAXIS

MIXED MODE INSPECTION FOR YOUR EFFICIENCY
By use of MES integration, tire ID, and sensors, each tire is reliably identified. The corresponding test program is called up and the test result is archived together with all data assigned to the tire.

YXLON Service Engine 4.0

To support our customers' success, we created our Service Engine 4.0 including first-class technical problem-solving combined with high economic efficiency. This engine drives our service, our processes and our partners to detect and correct failures quickly and reliably by remote access and during on-site visits. Our service centers and our service partners worldwide are at your disposal and can be contacted by phone, e-mail or via our website.

YOU BENEFIT FROM
- guaranteed operational safety
- maximized system availability
- minimized repair times
- full cost control of life-cycle costs
- extended product lifetime

Our module-based approach such as performance and feature upgrades enable you to adapt to future requirements and safeguard your initial investment by extending the product lifetime. With our Service Engine 4.0, fast support for you is provided by the way we network all service activities with our organization. We not only see your immediate need but are predictive of your future needs.

YXLON LIFECYCLE SERVICES

Academy – full performance from day one through tailored training solutions

SmartExchange – direct replacement of defective or worn-out components to minimize unscheduled system downtime

SpareParts – 100% compatibility and safety through Yxlon qualified spare parts

WarrantyPass – full cost control through our customizable warranty extension program

ServicePass – predictive maintenance and servicing, tailored to your requirements

SmartPass – maximum system uptime for customers with particularly high demands

LifeCyclePass – all-inclusive concept for full cost control over the entire product lifetime

Support – fully digitalized 1st-line support organized in a worldwide expert network, available remote or on-site

Upgrades – performance increase and new features for your Yxlon system portfolio

Service for Professionals

- SAFE INVESTMENT

- WORLDWIDE NETWORK

- SERVICE AND LIFETIME CONTRACTS

- UPGRADES

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Would you like to learn more about our systems?
Interested in a test inspection? Please contact
us by phone or e-mail. We look forward to hearing from you.