Y.MTIS

X-ray System for Radial Tire Inspection

- **The world's most widely used tire X-ray inspection solution**
- **Precise measurements due to its 4-spindle manipulator**
- **High-contrast X-ray images compliant with ASTM F1035**
- **Advanced automatic defect recognition software TireAXIS™ providing data on every tire for stastistical process control**

The focus on tire quality has never been more intense. Pressure is on manufacturers to ensure the quality of their products. YXLON MTIS, the modular tire inspection system from YXLON, meets the specific needs of the global tire industry for consistent high-quality automatic inspection. It offers a more versatile method of testing the finished tire by applying advanced X-ray technology in real time. Manufacturers around the world have chosen YXLON MTIS due to its unique inspection capability and simplicity of operation.

In addition to sorting accept and reject tires, the most recent trend is to continuously extract data on the tire construction from the X-ray images for statistical process control. Statistical analysis of the data allows the tire manufacturer to monitor the stability of the manufacturing process and initiate measures to prevent deviations from accepted tolerances at an early stage. In short: X-ray inspection monitors the quality level of every inspected tire and contributes significantly to quality improvement.

YXLON. X-ray technology at its best.

YXLON
Technology with Passion

1

3

3

2

1 YXLON MTIS Advanced
2 X-ray tube Y.TU100-T03
3 Tire loading and inspection with YXLON UScan 3
4 YXLON MTIS Performance PCR

4

Technical Data

Attribute	TBR	PCR	Advanced
Sample dimensions	13" to 26" tires Optionally: 12" to 26"	13" to 26" tires Optionally: 12" to 26"	13" to 26" tires Optionally: 12" to 26"
Maximum sample weight	160 [kg]	60 [kg]	110 [kg]
System dimension	~5400 x 5100 x 2700 [mm]	~4800 x 5100 x 2700 [mm]	~3900 x 3200 x 2700 [mm]
X-ray tube	100 kV / 300 W	100 kV / 300 W	100 kV / 300 W
Detector active area	2469 [px] (with UScan 3-L)	2469 [px] (with UScan 3-L) 1819 [px] (with UScan 3-M)	2469 [px] (with UScan 3-L) 1819 [px] (with UScan 3-M)
Pixel pitch	500 [µm]	500 [µm]	500 [µm]
Bit depth	16 [bit]	16 [bit]	16 [bit]
Cycle time	25 [s]	22 [s]	

X-ray tube specifications	
Type	Y.TU100-T03
Power	0 W – 300 W
Voltage	5 kV – 100 kV
Current	0 mA – 6 mA
Emission angle	6° x 280°
Focal-spot size (0°)	0.5 mm x 1.5 mm

1 X-ray components detector and tube
2 4-spindle gripper
3 X-ray image of tire
4 Tire inspection with YXLON UScan 3
5 Operator desk with TireAXIS™

Most widely used solution worldwide

The YXLON MTIS family has become the standard in tire X-ray inspection worldwide. Continuous development and improvements keep it state of the art. It displays all the features and reliability needed at a modern tire factory. Customers all over the world have chosen Yxlon.

System family to fit your capacity needs

The MTIS family is designed to provide the right throughput for your factory. There is no need to purchase a “one size fits all” system. Instead you can choose between the family members Performance PCR, Performance TBR and Advanced. That way you obtain the best ratio of required performance to price.

Four-point bead spread

The unique four-point bead spread and vertical tire rotation offered by Yxlon are key factors in acquiring distortion free, symmetrical 360° X-ray images. Whether large and rigid or small and flexible, both types of tires can be tested with excellent repeatability. Tire throughput is maximized via bead-to-bead inspection.

Operator console

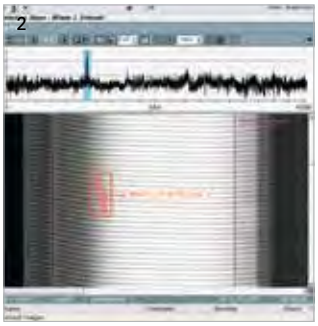
We have designed the operator console so that operators can work with the system efficiently. Industrial grade, it performs even under difficult factory conditions. The entire inspection system can be controlled from the console. Everything is visible on the various monitors and controls at a glance.

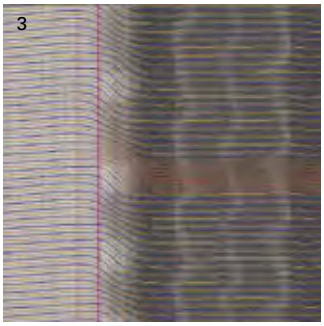
X-ray system

The X-ray system includes the Yxlon panoramic X-ray tube and detector specially developed for tire applications. The system provides a consistent geometric representation from bead to bead. System maintenance is reduced due to a unique cooling jacket designed for longest lifetime and stable operation.

TireView user interface

The software delivered with the MTIS has an extensive set of features. Auto gray value scaling, the versatile zoom and custom reference lines help in everyday use. Smooth scrolling of the high-contrast tire image makes the operator's job easier and enables high-quality inspections.





1 Blisters
2 Foreign object
3 Cord spacing
4 Reference point detection

TireAXIS™ automatic inspection

A controlled X-ray inspection process is easy to achieve using TireAXIS™, our software for automated X-ray inspection.
No visual fatigue occurs, and the quality does not depend on assigning an expert operator. The inspection software uses the image's full information and is not restricted to the limited gray values the human eye is able to detect. Using the high performance computer supplied, anomalies are found no matter where, no matter when.
The software can also be used to analyse the image in a semi-automatic mode, supporting the operator but not taking the final decision.
Whatever the inspection mode, the key image analysis data are exported and made available for statistical process control.

Off-the-shelf options

Offline PC workstations
Many activities, for instance inspection program creation or additional manual inspection, can be moved to an offline workstation. That leaves more capacity for inspection.

MES Interface
Tires come in many sizes and tread patterns, and may have a serial number, too. The manufacturing execution system often knows each tire inside-out. Tire MES interface options allow various ways to import this information to the MTIS system: from PLC controlled IT infrastructure to reading printed barcode labels. After inspection, the results and statistics can be handed back to the MES.

Reference point detection
The quality manager needs to investigate the specific location where a defect was found. With reference point detection, TireView is able to show the angular position relative to the barcode label of areas in the X-ray image.
All anomalies seen (or automatically detected) in the X-ray image can be traced to physical locations within the tire.

YXLON
Technology with Passion

YXLON International GmbH
Essener Bogen 15
22419 Hamburg
Germany
T: +49 40 527 29-0

www.yxlon.com

9499.211.21010.TB06