

XS-series Semiconductor setup



High Speed Inline AXI Platform with minimal footprint

The Nordson T&I MATRIX XS-series with Semiconductor setup is an automatic inspection system platform designed for sophisticated high speed inspection of semiconductor products. Available with Class 1000 cleanroom certification, it is the perfect solution for the inspection of leadframes, substrates or singulated devices in Jedec trays. The following setups are available:

High Resolution Setup

2,5-3 $\mu\text{m}/\text{pix}$ resolution
Gold-wires, CU-wires down to 1,5mil diameter, die-attach voiding

Ultra High Resolution Setup

0,8 $\mu\text{m}/\text{pix}$ resolution
Gold-wires, CU wires down to 0,6mil diameter, die attach, μ -bump voiding and flipchip inspection of 40 μm bump sizes

The Nordson MATRIX system solutions present a modular inspection concept. The platforms feature up to 4 advanced technologies in one system: Transmission X-ray imaging (2D) with patented Slice-Filter-Technique™ (SFT), Off-Axis technology (2.5D) and 3D Planar CT (Simultaneous Algebraic Reconstruction Technique).

The XS-series platform is available in the following configurations:

XS-2 Transmission (2D) + SFT™

XS-2.5 Transmission (2D) + SFT™ + Off-Axis (2.5D)

XS-3 Transmission (2D) + SFT™ + Off-Axis (2.5D) + 3D Planar CT



Inspection & Process Software

- MIPS 5 Inspection Platform
 - Advanced algorithm library
 - CAD import for automatic inspection list generation
 - Simultaneous Algebraic Reconstruction Technique (3D Planar CT; XS-3 only)
 - Automatic Tree Classification (ATC) for Auto-Rule-Generation
 - Offline programming for inspection program generation & simulation, setup and defect reference catalogue
- Verification & Process control
 - MIPS Verify with closed loop repair
 - MIPS Process with real time SPC

Features and Benefits

- High Speed AXI system for inline setups
- Microfocus/Nanofocus X-ray tube (sealed, maintenance free)
- High-speed motion system with linear drives
- Digital CMOS flatpanel detector
- Automatic grey-level and geometrical calibration
- Flexible setup for inline pass through or same-side in/out configuration
- Full product traceability via various Industry 4.0 MES Interfaces
- SEMI S2/S8 compliance

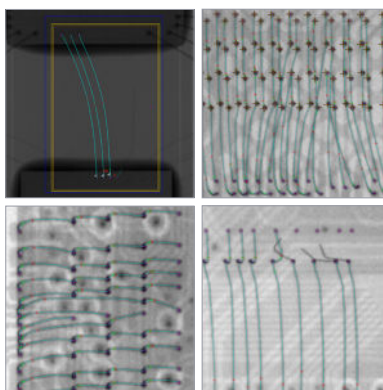
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Applications

Semiconductor / Wire Bond Testing

A unique advanced algorithm library is available for the inspection of:

- Semiconductor applications
- Full wire bond Test (pre & post encapsulation)
- Multiple die inspection, up to 16 die stacks
- Flip-chip inspection
- Flex circuits
- Die-Attach Voiding



Specifications

Facilities	
Dimensions:	1760 mm (H) x 1300 mm (W) x 1600 mm (D)
Weight:	2.320 kg
Safe Operating Temperature:	15° - 28 °C optimal 20° - 25° C
Power Consumption:	max. 6 kVA
Line Voltage:	208 / 400 VAC, 50/60 Hz 3 phase, 24/16 A
Air:	5-7 Bar, < 2 l/min, filtered (30µ), dry, oil free

X-ray Image Chain		
<u>X-ray Source (sealed tube)</u>		
Energy:	<u>High resolution setup</u>	<u>Ultra high resolution setup</u>
	100 kV / 20 W	160 kV / 20 W
Grey resolution:	14 Bit	
CMOS Flatpanel Detector	50 µm pixel size	

Motion System	
<u>Installed axes</u>	
xy (linear drives)	sample table
z (servo)	magnification
u,v (linear drives)	detector movement
<u>Conveyor setup</u>	
pass through	single lane
In-out same side	dual lane

X-ray inspection setup		
<u>Off-Axis capability:</u>	Angle shot capability:	up to 30 deg
<u>FoV range:</u>	Transmission FoV:	1.9 mm to 25 mm
Sample Inspection Parameter		
<u>Standard setup:</u>	Max. sample size (W x L):	200 mm x 250 mm - High Res. Setup 150 mm x 250 mm - Ultra High Res. Setup
	Min. sample size (W x L):	> 25mm x 60mm
	Max. inspection area (Transmission):	Same as max. sample size (please see above)
<u>Assembly Clearance</u>	Topside (incl. board thickness):	+/- 15 mm
	Bottom side (excl. board thickness):	+/- 15 mm
	Edge clearance for clamping:	1,5 mm - 3 mm
<u>Sample- Warpage Compensation</u>	Optional item	Top-clamp or Vacuum Jig Technique

Inspection speed	
Transmission (XS-2, XS-2.5, XS-3)	up to 6 views /s
Off-Axis (XS-2.5, XS-3)	up to 5 views /s
3D Planar CT (XS-3)	up to 1 s /FoV

Options
Automated Barcodereader station
Substrate Handling setup with Magazine loader/un-loader/laser-marker
Top-clamp warpage compensation
Multiple HEPA filter configurations

For more information, speak with your Nordson MATRIX representative.

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