XS-series Semiconductor setup

SWire Sweep Bondtest

LED

Sensors

High Speed Inline AXI Platform with minimal footprint

The Nordson MATRIX XS-series with Semiconductor setup is an automated inspection system platform designed for sophisticated high speed inspection of semiconductor products on stripes or in Jedec trays (e.g. overlapping wires or wire dense areas). The following setups are available:

High Resolution Setup	Ultra High Resolution Setup
2,5-3 μm/pix resolution all gold-wires, CU-wires down to 1,5mil diameter die-attach voiding	0,8 μm/pix resolution all gold-wires, CU wires down to 0,6mil diameter die attach and μbump voiding down 40μ 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 SART (**S**imultaneous **A**lgebraic **R**econstruction **T**echnique).

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 SART**

Inspection & Process Software

- PC-Station with multi-core processor setup
- Windows 10 platform
- MIPS 5 Inspection Platform
  - Advanced algorithm library
  - CAD import for automatic inspection list generation
  - Simultaneous Algebraic Reconstruction Technique (3D SART; XS-3 only)
  - Automatic Tree Classification (ATC) for Auto-Rule-Generation
  - Offline programming for AXI program generation & simulation, tuning and defect reference catalogue
- Verification & Process control
  - MIPS Verify link with closed loop repair
  - MIPS Process with real time SPC

Features and Benefits

- High Speed AXI system for inline setups
- Microfocus X-ray tube (sealed tube / maintenance free)
- Multiple programmable 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
- IPC-CFX ready

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XS-series Semi Backend setup

Applications

Semiconductor / Wire Bond Testing

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

- Semiconductor applications
- Wire bond Test (pre & post)
- Multiple die inspection, up to 16 die stacks
- Light, but complex PCB's
- Flex circuits
- Die-Attach Voiding
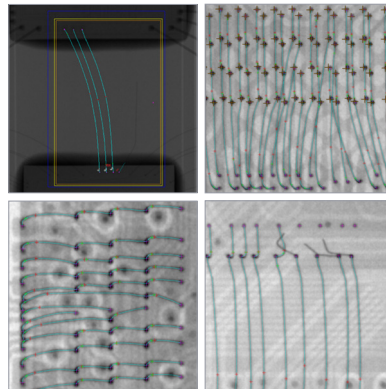
Specifications

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 kW
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

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

Motion System

Multiple axes programmable motion system

Installed axes	
x,y (linear drives)	sample table
z (servo)	magnification
u,v (linear drives)	detector movement
Conveyor setup	
pass through	single lane
In-out same side	dual lane

X-ray inspection setup

Off-Axis capability.	Angle shot capability:	up to 30 deg
FoV range:	Transmission FoV:	5 mm to 25 mm
Sample Inspection Parameter		
Standard setup:	Max. sample size:	300 mm x 250 mm
		(depending on tube and magnification)
	Min. sample size:	> 60 mm x 25 mm
	Max. inspection area (Transmission):	300 mm x 250 mm
Assembly Clearance	Topside (incl. board thickness):	+/- 25 mm
	Bottom side (excl. board thickness):	+/- 25 mm
	Edge clearance for clamping:	> 1,5 mm
Sample- Warpage Compensation	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 SART (XS-3)	up to 1 s /FoV

Single wire defection detection up to 10000 wire/unit
Increased Throughput up to 3 times

Options

Barcodereader
Substrate Handling setup with Magazine loader/un-loader/laser-marker
Top-clamp warpage compensation

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