X#-Series SMT setup

Flexible Inline AXI platform

The X#-platform series is an inline automated X-ray system which covers a wide range of AXI applications. It is a flexible platform with very versatile fields of use depending on the application requirements. The inspectable applications range from component level inspection for wire bonds, large SMT boards, high-power electronic modules up to fully assembled modules.

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 **X#-series platform** is available in the following configurations:

X2#   **Transmission (2D) + SFT™**

X2.5#   **Transmission (2D) + SFT™ + Off-Axis (2.5D)**

X3#   **Transmission (2D) + SFT™ + Off-Axis (2.5D) + 3D SART**

Features and Benefits

- Flexible AXI system for inline and island of automation configurations
- Microfocus X-ray tube (sealed tube / maintenance free)
- Multiple programmable motion system with servo drives
- Digital CMOS flatpanel detector
- Automatic grey-level and geometrical calibration
- Flexible setup for inline pass through or same-side in/out configuration
- Barcode scanner for serial number and product type selection
- Full product traceability via customized MES-Interface

Inspection & Process Software

- PC-Station with multi-core processor setup
- Windows 10 platform

MIPS Inspection Platform

- Advanced algorithm library
- CAD import for automatic inspection list generation
- Simultaneous Algebraic Reconstruction Technique (3D SART: X3# only)
- Automatic Tree Classifcation (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 Proces with real time SPC

Nordson MATRIX
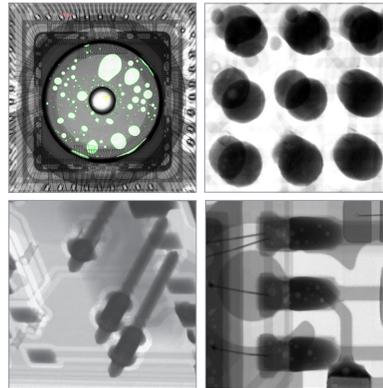
X#-Series SMT setup

Applications

Electronic components and solder joint

A unique advanced algorithm library is available for electronic applications, specifically for component and solder-joint inspection on PCB, hybrid or chip level assembly processes.

All standard SMD and THT/PTH components

- BGA & dedicated off-axis head-in-pillow (HIP) algorithm
- Comprehensive QFN & gullwing algorithm
- Robust solder surface / heatsink void inspection
- Pin in paste barrel fill measurement
- Discrete down to 1005 pitches

Specifications

Facilities	
Dimensions:	1775 mm (H) x 3100 mm (W) x 1760 mm (D)
Adjustable conveyor height (SMEMA)	890 – 980 mm
Weight:	2.800 kg
Safe Operating Temperature:	15° - 28 °C optimal 20° - 25° C
Power Consumption:	max. 6 kW
Line Voltage:	400 VAC, 50/60 Hz 3 phase, 16 A/ 208 VAC, 50/60 Hz 3 phase, 25 A
Air:	5-7 Bar, < 2 l/min, filtered (30µ), dry, oil free

X-ray Image Chain	
X-ray Source (sealed tube)	
Energy:	**SMT-Setup** 130 kV/40 W
Focal Spot Size:	5 microns
Grey resolution:	up to 16 Bit
Detector Types:	
CMOS Flatpanel Detector	50 µm pixel size (5 MPix) 75 µm pixel size (3 MPix)

Motion System	
Multiple axes programmable motion system	
Installed axes	
x,y	sample table
z	magnification
u,v	detector movement
Conveyor setup	
pass through	single lane
in-out same side	dual lane

Inspection features	
Max. sample size:	510 mm x 410 mm
Max. inspection area:	480 mm x 410 mm
Min. sample size	100 x 80 mm
Sample thickness	0,8-10 mm
Max. sample weight:	5 kg
Angle shot capability:	0 – 40 dgr
Resolution	down to 3 µm / pix

Assembly clearance	
Topside (incl. sample thickness):	100 mm
Bottom side (excl. sample thickness):	40 mm
Min. Edge clearance for clamping:	6 mm

Inspection speed	
Transmission (X2#, X2.5#, X3#)	up to 3-4 views /s
Off-Axis (X2.5#, X3#)	up to 2-3 views /s
3D SART (X3#)	up to 3 s / FoV

Options
Barcodereader
Auto BCR scanning station (x-y gantry)
Low-dose radiation filter

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