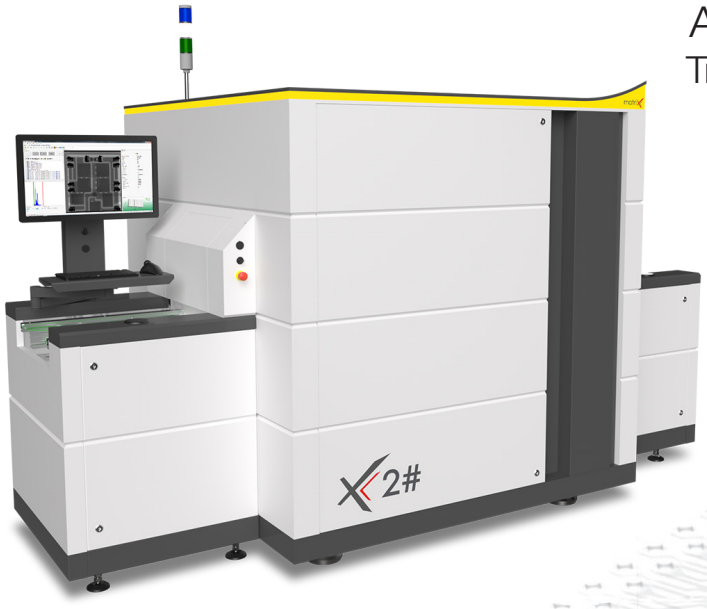
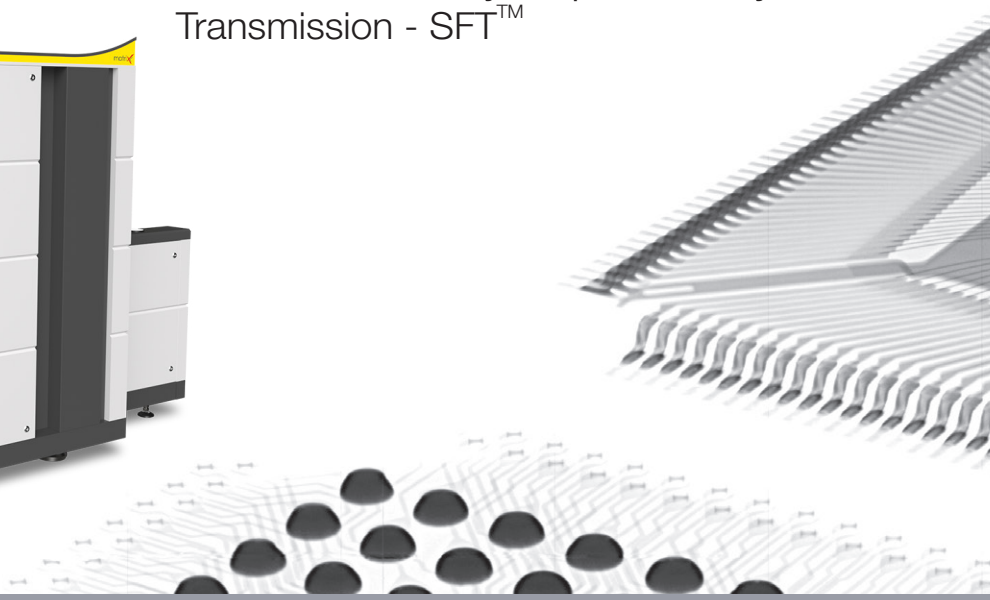
# Automated X-ray Inspection System
## Transmission - SFT™



# X2#

Flexible In-line X-ray system

The MatriX **X2#** is an flexible, automated inspection system designed for sophisticated high-speed inspection in SMT production. Transmission X-ray Technology with patented Slice-Filter-Technique (SFT) present a reliable solution for the in-line inspection of double-sided PCB assemblies. It features fully automated inspection based on a CAD compiled inspection list and uses an inspection model library for the test-strategy defnition. The motion system as well as the image acquisition chain meets all demands of high-speed inspection.

**MIPS_Tune** is an off-line programming software package for test program generation with automatic CAD import and for graphical application parameter tuning. It features an automatic inspection list generation based on an advanced algorithm library for transmission and off-axis joint inspection. Proprietary **Tree-Classification** technique with integrated automatic rule generation, graphical measurement & yield display for program optimization.

The verification software module **MIPS_Verify** with its closed-loop repair concept is capable of in-line or off-line verification using a graphical board layout display and X-ray image with defect marking. Support of multiple inspection modes with parallel viewing of transmission oblique view and optical images of the same defect for easy and reliable defect verification.

## Features and Benefits

- High Speed AXI System for In-line and Off-Line setups Transmission: 3-4 images/sec
- Microfocus X-RAY tube: 130kV/40W (wide beam) sealed tube / maintenance free
- 3-axes programmable motion system with servo drives (X-Y sample table, Z-axes xray tube)
- Digital CMOS flatpanel detector (14 bit digital output) standard & hi-res setup
- Automatic grey-level and geometrical calibration
- In-line pass through board handling with automatic width adjust
- Barcode scanner (1D/2D) for serial number and product type selection
- Full product traceability via customized MES-Interface
- Optional: Combination with MatriX AOI module (high-speed line scan with SIM technology)

## Inspection & Process Software

- PC-Station with multi-core processor setup
- Windows 7 or Windows 10 platform
- CAD Import for automatic inspection list generation
- Advanced Algorithm Inspection Library for solder joint and component inspection
- Slice-Filter-Technique (SFT) for double-sided board inspection
- Automatic-Tree Classification (ATC) for Auto-Rule-Generatio
- Off-line programming for AXI program generation & simulation, tuning and defect reference catalogue.
- MIPS_Verify link with closed-loop repair
- MIPS_SPC for real-time process control

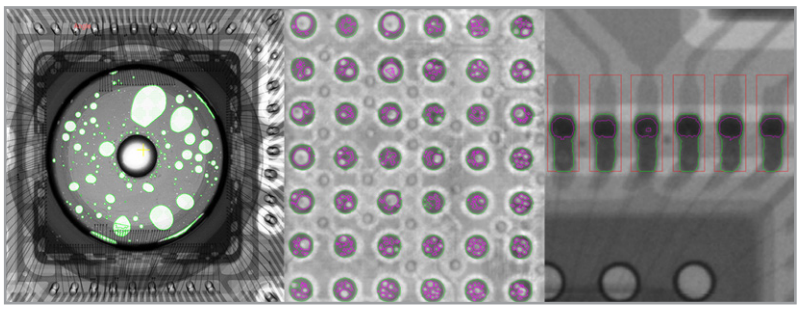
matriX
A NORDSON COMPANY

## 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 and fine-pitch SMD components
- Specific BGA and QFN algorithm
- Advanced cooling plates/ heatsink
- Void inspection



## Specifications

### Facilities

**Dimensions:**
1670 mm (H) x 3100 mm (W) x 1760 mm (D)

**Adjustable conveyor height** (SMEMA):
890 – 980 mm

**Weight:** 3.000 kg

**Safe Operating Temperature:**
15° - 32 °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

### Part Handling / Motion

High-speed sample table

**Driving distance x,y:** 510 x 410 mm

**X-Ray tube (z):** 0 - 150 mm

X-ray Source (sealed tube)

**Energy:** 130 kV/40 W

**Focal Spot Size:** 5 microns

**X-Ray Tube Orientation:** End window tube

### X-ray Imaging

**Grey value resolution:** 14 bit

**Video output:** Camera link interface

**Detector Type A:** CMOS Detector (1,5 k x 1,5 k)

**Active inspection area:** 115 x 115 mm

**Detector Type B:** CMOS Detector (2.3 k x 2.3 k)

**Active inspection area:** 115 x 115 mm

### Inspection features

Standard FoV setup

**Transmission FoV:** 10 mm to 40 mm

**Object resolution (@min. FoV):** 4-5 µm

High-resolution setup

**Transmission FoV:** 5 mm to 25 mm

**Object resolution (@min. FoV):** 2-3 µm

Sample Inspection Parameter

Standard SMT setup

**Max. board size:** 20”x 16” (510 x 410 mm)

**Max. inspection area:** 19”x 16” (480 x 410 mm)

XL SMT setup

**Max. board size:** 24”x 16” (610 x 410 mm)

**Max board weight:** 11 lbs (5 kg)

**Board thickness:** 0.03” – 0.2” (0,8-5 mm)

Assembly clearance

**Topside:** (incl. board thickness): 45 mm

**Bottom side:** (excl. board thickness): 50 mm

**Edge clearance for clamping:** 3 mm

**For more information, speak with your MatriX representative.**


**Germany**
Feldkirchen (Munich)
+49.(0)89.189.4140.0 **Phone**
+49.(0)89.189.4140.98 **Fax**
info@m-xt.com **Mail**

Hildesheim
+49.(0)5121.875.8428 **Phone**
info@m-xt.com **Mail**

**Hungary**
Budapest
+36.(0)30.876.5038 **Phone**
hungary@m-xt.com **Mail**

**USA**
San Diego
+1.858.536.5050 **Phone**
+1.858.536.50.50 **Fax**
sales@focalspot.com **Mail**

**Singapore**
Singapore
+65.6513.5766 **Phone**
+65.6425.5231 **Fax**
singapore@m-xt.com **Mail**

**China**
Suzhou
+86.136.5620.3952 **Phone**
china@m-xt.com **Mail**

**Japan**
Kagoshima
+81.9954.38876 **Phone**
japan@m-xt.com **Mail**

**Brazil**
Vinhedo-SP
+55.1938.7605.35 **Phone**
info@m-xt.com **Mail**



**MatriX Technologies GmbH**
Dornacher Str. 5
85622 Feldkirchen (Munich)
Germany

+49.(0)89.189.4140.0 **Phone**
+49.(0)89.189.4140.99 **Fax**
info@nordsonmatrix.com
nordsonmatrix.com


Copyright © 2016 MatriX Technologies GmbH

matriX
A NORDSON COMPANY