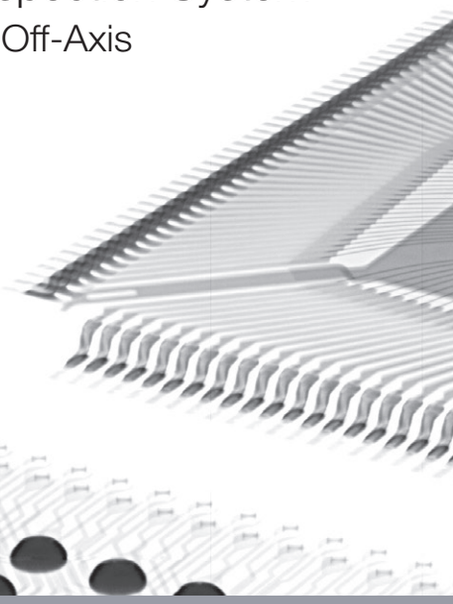
Automated X-ray Inspection System
Transmission - SFT™ - Off-Axis



X2.5# High-Power (HP) setup for Power Hybrids/Modules

The **MatriX X2.5#** is an automated inspection system designed for sophisticated high-speed inspection in SMT production. Transmission X-ray Technology with patented Slice-Filter-Technique (SFT) and Off-Axis technology present a reliable solution for the in-line inspection of double-sided PCB assemblies. The X2.5# movable detector axes allow high-speed off-axis image acquisition from different angles and directions with maximum image quality and resolution.

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.

MIPS_SPC – process control tools for real-time and history statistics.

Features and Benefits

- High Speed AXI System for In-line and Off-Line setups
  Transmission: 2-3 images/s
  Off-axis: 1-2 images/s
- Microfocus X-RAY tube (sealed tube / maintanence free)
- 5-axes programmable motion system with servo drives (x-y sample table, z-axes X-ray tube, u,v detector axes)
- Digital CMOS flatpanel detector (14 bit digital output) or 16 bit high-dynamic setup (Amorphous Silicon Tech)
- Automatic grey-level and geometrical calibration
- Inline 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: Tray conveyor handling system
- External programmable barcode scanner unit with x,y motion scanner head

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-Generation
- 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

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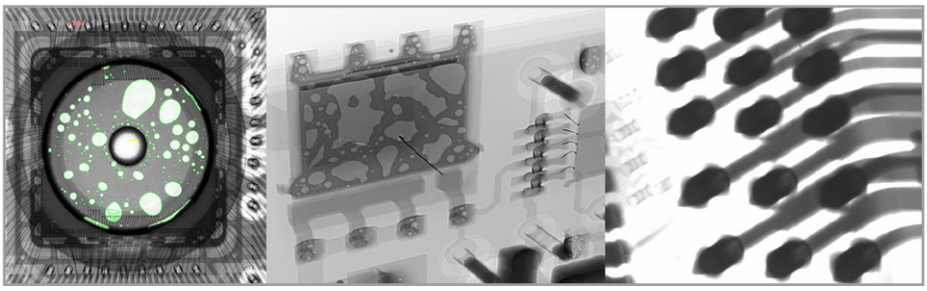
X2.5# High-Power (HP) setup for Power Hybrids/Modules

Applications

POWER HYBRID (VOIDING) AND PTH (BARREL-FILL) INSPECTION

A unique advanced algorithm library is available for electronic applications, specifically for SMT/PTH components and power hybrids & motion:

- All standard SMD and THT/PTH components
- Specific BGA and QFN algorithm
- Power hybrid specific algorithm library
- PTH/THT Barrel Fill Measurement
- 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 mm x 410 mm

X-Ray tube (Z): 0 - 150 mm

Detector Axes (U,V): 220 mm x 200 mm

X-ray Source (sealed tube)

Energy: 150 kV/75 W

Focal Spot Size: 5 microns

X-Ray Tube Orientation: End window tube

X-ray Imaging

Video output: Camera link interface

Detector Type A (14 bit) (75µ):
CMOS Detector (1,5k x 1,5k)

Active inspection area: 115 x 115 mm

Detector Type B (16 bit) (100/200µ):
ASI Detector (1k x 1k)

Active inspection area: 200 x 200 mm

Inspection features

Angle shot capability: 0 – 25 dgr

Standard FoV setup

Transmission FoV: 10 mm to 40 mm

Object resolution (@min. FoV): 4-5 µm

Low FoV-setup:

Transmission FoV: 15 mm to 50 mm

Object resolution (@min. FoV): 7-8 µm

Sample Inspection Parameter

Standard setup:

Max. sample size: 21”x 16” (510 mm x 410 mm)

Optional: XL-Version: 600 x 410mm

Max. inspection area: 20”x 16” (480 mm x 410 mm)

Customized tray design upon request

Assembly Clearance

Topside (incl. board thickness): 80 mm

Bottom side (excl. board thickness): 45 mm

Edge clearance for clamping: 3 mm

For more information, speak with your MatriX representative.

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