

Ultra Speed
Model

3D AXI

AUTOMATED X-RAY INSPECTION

TR7600 SV SERIES



High-Speed Robust Platform,
20% Performance Improvement*



AI-Powered Inspection Algorithms



Smart Factory Ready for
Easy MES Connectivity



EtherCAT - Faster
Communication

7-25
 μm μm

Multi-Resolution



Smart Board
Warpage



TRI
innovation

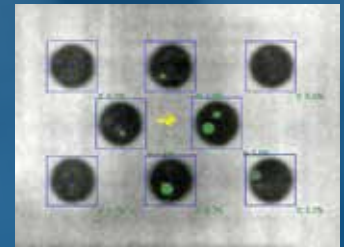
TRONIK[®]

*Compared to previous model, TR7600 SIII.

TR7600 SV SERIES

High-Performance 3D AXI

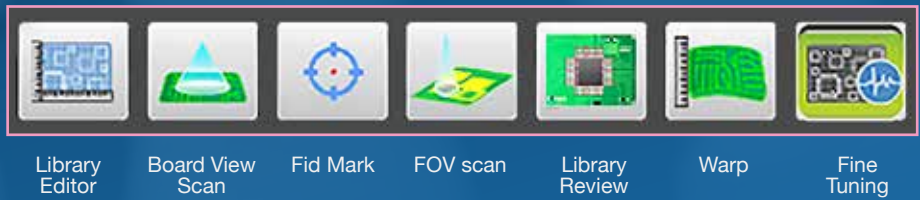
The TR7600 SV series is the newly released line scan 3D AXI, with up to 20% performance improvement compared to the award-winning TR7600 SIII series. Powered by AI Algorithms, the high-speed 3D AXI can precisely detect Void defects. With 7 μm high-resolution, the TR7600 SV series delivers a high yield rate inspection. The robust platform is capable of fast image reconstruction and defect detection in BGA, THT, SiP, and more.



BGA Void Inspection

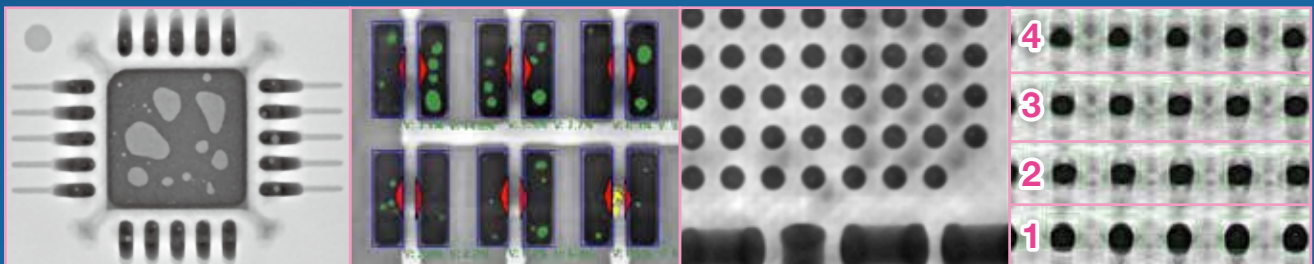
Smart Programming

The new 3D AXI intuitive software helps set up inspection programs based on CAD data. The TR7600 SV series is equipped with TRI's extensive smart component library, reducing engineer workload and minimizing production downtime.



High-Resolution Design for Maximum Defect Detection

The TR7600 SV series enhanced 3D inspection with planar CT imaging can recreate a complete 3D model of each solder joint, enabling clear analysis of shape irregularities, head-in pillow and voiding problems. Vertical cross-section CT images help with reliable visual review of borderline and buried solder joints.

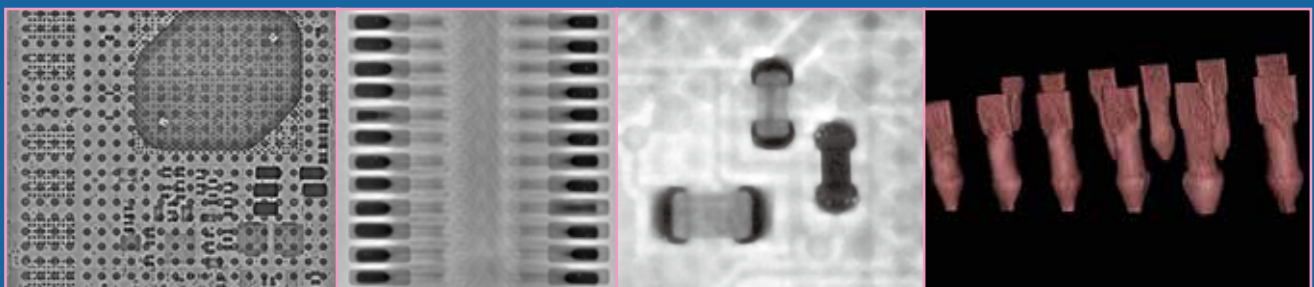


QFN Void Detection

LED Void

PoP Inspection

PTH Inspection - Slides



LGA Void

DIMM Connector Inspection

Chip Inspection

THT 3D CT Inspection

Inline Fine Tuning

Optimize the Programming and Fine Tune the false calls while the machine is operating. This can be done from the AXI, reducing operators, and enabling manufacturing to take action without affecting the cycle time or yield rate.



Board Warpage Control

The AXI solution uses multiple laser sensors to measure PCB assembly deformations and adjusts component inspection parameters to compensate for the board warpage.



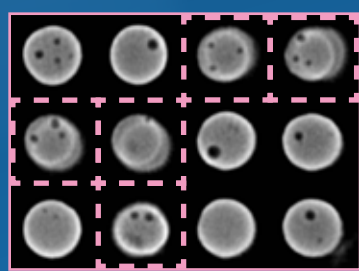
Ease of Maintenance

The high-reliability robust platform and advanced automatic/scheduled calibration with detail reporting ensure ease of maintenance.



High Accuracy BGA Inspection

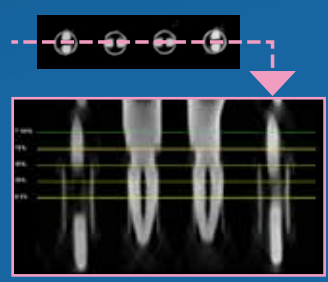
TRI solutions can inspect individual slices' absolute area, shape, and compare it to the nearest BGA. The HiP defect algorithm considers multiple slices simultaneously, quantifying, and comparing the profile of the BGA.



BGA HiP Defect

Press-Fit Inspection

The telecommunications industry commonly uses press-fit connectors because they assure electrical and mechanical reliability. TRI's AXI solutions can accurately inspect and detect missing, insufficient penetration, and askew in press-fit connectors.



Press-fit Cross Section Inspection



Press-fit 3D CT Inspection

AOI/AXI Integrated Review System

AOI and AXI results are combined in one Repair Station, easing AOI-AXI communication and lowering labor costs by reducing headcount.



AI-Powered Inspection

TRI's AXI are equipped with AI algorithms, which are superior to the commonly used gray-level based algorithms. The AI algorithm can accurately detect void and open defects.



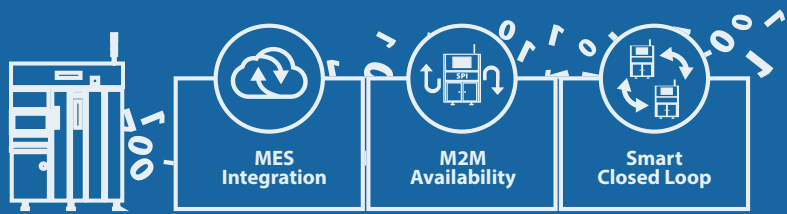
Void Defect

Gray-level Based

AI Algorithm

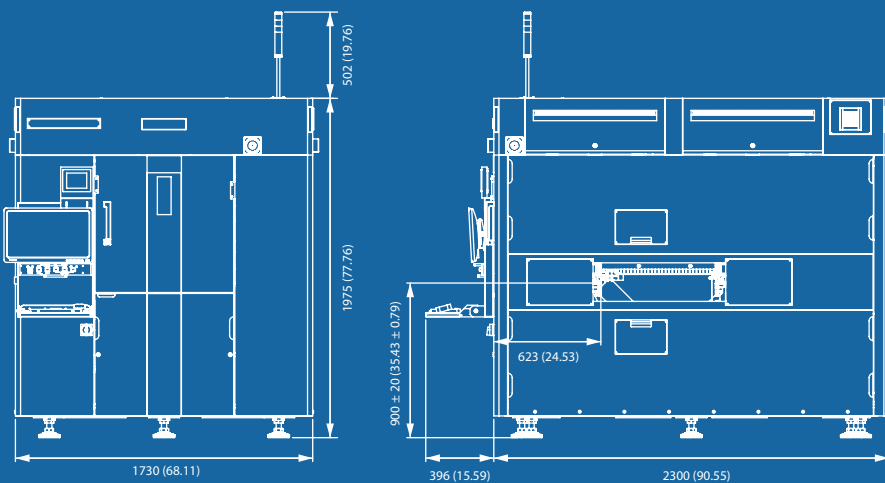
Smart Factory Ready

TRI's Smart Factory Solutions promote full data exchange and traceability by generating Big Data for your preferred MES application, which is essential for optimizing your yield rate, enabling the Connected Factory. TRI's solutions comply with the latest Industry 4.0 standards, such as IPC-Hermes-9852, the IPC-DPMX, and the Connected Factory Exchange (IPC-CFX).



Model		TR7600LL SV
Imaging System	Camera	Ultra-High Speed Line-Scan CCD Cameras 3 or 5 Units (9 or 15 Sensors)
	X-ray Source	60 - 130 kV
	Imaging Resolution	7 µm - 25 µm
	Inspection Method	2D, 2.5D, 3D Slicing, Planar CT (Optional)
Inspection Functions	Components	BGAs, Barrel fill, Capacitors, Chips, Components Under RF shields, CSPs, DIMM Connectors, Flip-Chips, Ground Pads, Gullwing, Heat sinks, J-Leads, LED Chips, LGAs, Paladin Connector, Resistor, RNET, SiP, SMT Connectors, SOIC, SOT, Thermal Pad, QFNs, QFP and THTs
	Defects	Missing, Misalignment, Tombstone, Billboard, Tantalum Polarity, Rotation, Foreign Material, Insufficient/Excess Solder, Bridging, Open, Solder Ball, Non-Wetting, Void and Lifted Lead
X-Axis Control		Linear Servo Motor with Motion Controller
Y-Z-Axis Control		High-Precision Ballscrew + AC-Servo Controller
Max PCB Size		1000 x 660 mm (39.37 x 25.98 in.)
PCB Thickness		0.4 - 7 mm (0.02 - 0.28 in.)
PCB Transport Height		880 - 920 mm (34.65 - 36.22 in.)
Max PCB Weight		12 kg (26.46 lb)
PCB Carrier / Fixing		Step Motor Driven / Pneumatic Clamping
Clearance	Top	7 µm 10 µm 15 µm 20 µm 25 µm 7 mm (0.28 in.) 15 mm (0.59 in.) 30 mm (1.18 in.) 50 mm (1.97 in.)
	Bottom	70 mm (2.76 in.) 55 mm (2.17 in.)
	Edge	3 mm (0.12 in.) or 5 mm (0.20 in.)
		4900 kg (10,802.65 lb)
Weight		200 - 240 VAC, Single Phase, 50 / 60 Hz, 4 kVA
Power Requirement		< 0.5 µSV/h
X-ray Leakage		72 psi - 87 psi (5 - 6 bar)
Air Requirement		Barcode Scanner, Repair Station, Offline Editor, Yield Management System (YMS 4.0), CAD Converter and CT Imaging, AI Solutions
Optional Features		

Unit: mm (in.)



TR7600LL SV

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