

TR7600F3D SERIES

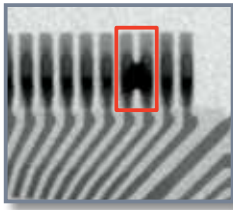


- High Resolution 3D CT X-Ray Inspection
- True 3D Solder Joint Viewer
- Ultra High Resolution for 03015mm Chips

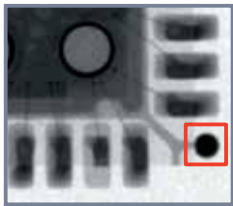
**AUTOMATED
X-RAY INSPECTION**

TR7600F3D FEATURES

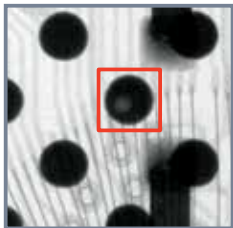
Defect Symptom Images



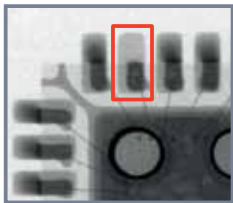
IC Lead Bridging



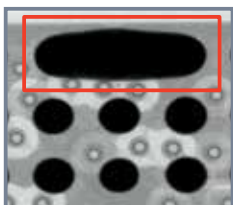
Solder Ball



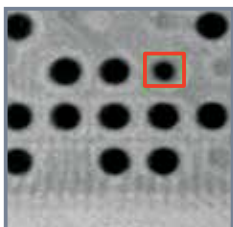
BGA Void



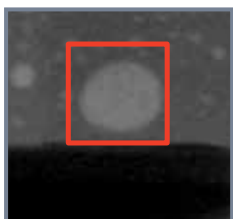
QFN Open



BGA Bridging



BGA Open



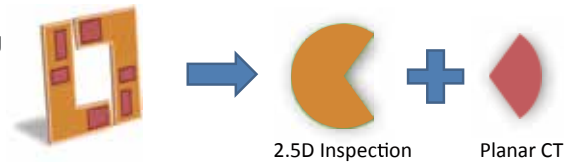
Solder Void

Ultra High Resolution CT X-ray Solution

In TR7600F3D, TRI has created an inline CT AXI solution for the most demanding SMT products. Combining ultra high resolution imaging with high definition planar CT inspection, a new robust hardware platform and a redesigned intuitive software, the TR7600F3D presents a next generation inspection platform for the most demanding PCB design.

The Winning Inspection Strategy

- Ultra high resolution full panel imaging
- Selective planar CT inspection
- Automatic defect evaluation
- Intuitive programming and fine tuning
- Fine pitch and wearable design ready



Ready for Next Generation Electronics

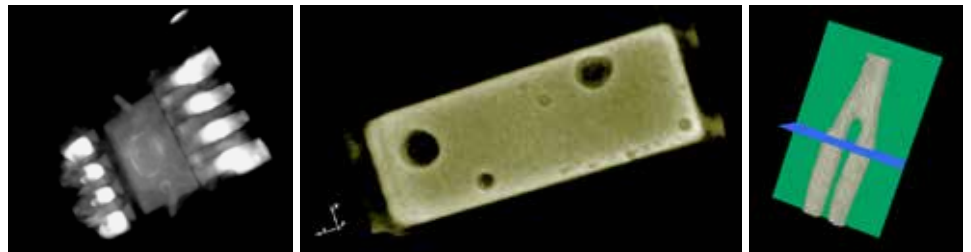
Mobile and wearable electronics feature fine pitch components and high density PCBAs. Without visual or test access, these products call for a new approach to inspection.

TR7600F3D reliably inspects flex PCB assemblies as well as complex multi-layer PCBAs using a combination of 2.5D X-ray imaging and 3D reconstruction with high definition planar CT.

Attention to Detail

TR7600F3D offers exceptional image quality for inspection of the smallest solder joints and assembly details. With the mobile and wearable market in mind, TRI has focused the new design around highly integrated miniature assemblies featuring many customized components.

Combining high resolution 2.5D X-ray images and detailed 3D CT ensures complete inspection from any angle.



High resolution 3D CT inspection images

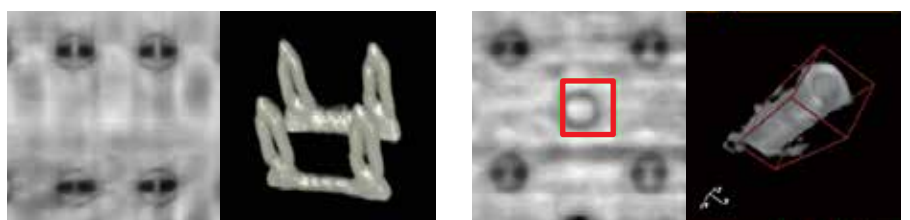
3D CT Inspection

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.



Enhanced Defect Visualization with CT

CT data processing helps clearly visualize solder defects such as voiding, bridging and deformities.



3D CT displays solder joints and defects in much more detail than traditional 3D X-ray slicing

Eliminate Board Warp Issues

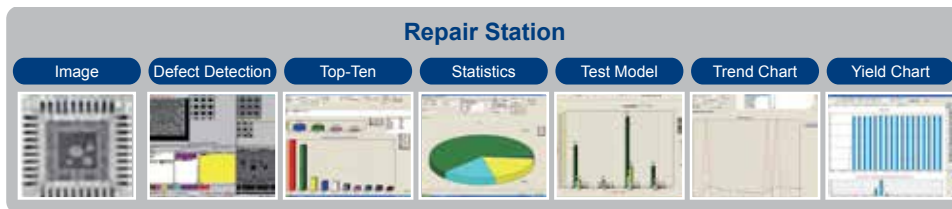
The TR7600F3D use multiple laser sensors to accurately measure any PCB assembly deformation and automatically adjusts component inspection parameters to compensate for local board warpage. This ensures reliable inspection of the most complex boards with overlapping and multi-layered components and heavy press-fit connectors.

Designed for Operator Safety

Designed with safety in mind, TRI's AXI systems have a number of fail-safe features preventing injury or board damage. Full lead shielding prevents harmful exposure in everyday use and reduces X-ray leakage below background radiation levels of 0.5 $\mu\text{Sv/hr}$. The certified safety design conforms to USFDA Code of Federal Regulations Title 21, Part 1020.40.

Repair Station

The TR7600F3D collects a wide range of inspection data to offer instantaneous process monitoring and analysis. This integrated approach offers clear statistical feedback that improves defect management and enhances the efficiency of the inspection process.



Yield Management System 4.0

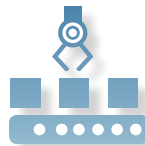
YMS 4.0 provides a M2M centralized inspection monitoring and remote access fine tuning throughout the SMT line. Built-in support for SPI, AOI, AXI and ICT systems helps track Alarms and SPC data to simplify production quality monitoring. YMS 4.0 is TRI's Industry 4.0 closed loop software to assure your production line Inspection quality and efficiency.



INCREASE EFFICIENCY



REDUCE MANPOWER

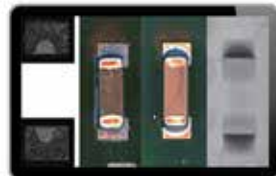


LEANER PRODUCTION LINE

The Yield Management System allows operators to aggregate information from individual TRI inspection systems for statistical analysis of production line defect rates, reviewing and fine-tuning inspection results, and identifying component defect trends and emerging production issues.



PRODUCTION ANALYSIS

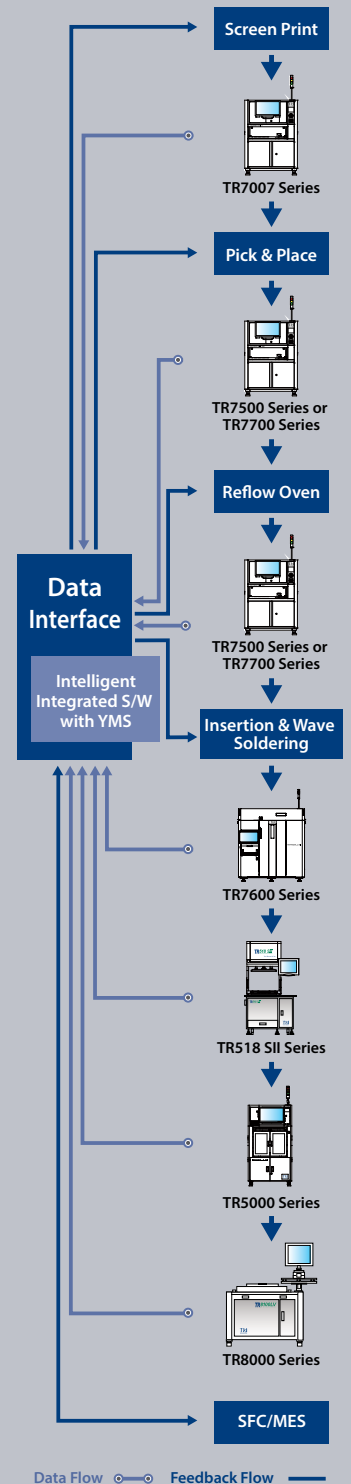


CENTRALIZED INSPECTION CENTER



REAL TIME SPC TREND

Yield Management System



- Inspection results and data integration
- Real time SPC and production yield management
- Quality reports and closed loop tracking
- Support defect component analysis and improvements
- Knowledge Management (KM)
- Productivity and Quality Management



X-Ray & Imaging System

X-ray Source	130 kV max (user adjustable)
Image Resolutions	5 μm, 10 μm, 15 μm, 20 μm, 25 μm, 30 μm (choose 3 resolutions)
Camera	7MP flat panel detector

Inspection Functions

Component Level Defects	Missing, Misalignment, Tombstone, Billboard, Tantalum Polarity, Rotation, Floating
Joint Level Defects	Insufficient/Excess Solder, Bridging, Open, Solder Ball, Non-wetting, Void, Lifted Lead

X-Y-Z Table & Control

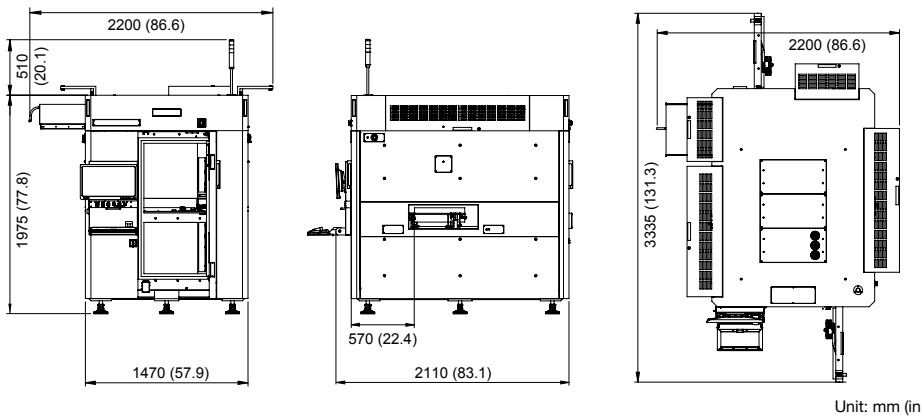
X-Y-Z Axis	High-precision ballscrew + AC servo with motion controller
X-Y-Z Axis Resolution	1 μm

PCB & Conveyor System

Max. PCB Size	900 x 460 mm (35.4 x 18.1 in.)
Max. PCB Thickness	7 mm
PCB Transport Height	880 - 920 mm (34.6 - 36.2 in.)*
Max. PCB Weight	12 kg (26 lb)
PCB Carrier/Fixing	Step motor driven conveyor & pneumatic clamping
Clearance	
Top 20/25/30 μm	50 mm (1.97 in.)
15 μm	45 mm (1.77 in.)
10 μm	25 mm (0.98 in.)
5 μm	5 mm (0.20 in.)
Bottom 30 μm	55 mm (2.17 in.)
5/10/15/20/25 μm	70 mm (2.75 in.)
Edge	3 mm (0.11 in.) or 5 mm (0.20 in.)

* SMEMA Compatible

Dimensions



Weight	3850 kg (8488 lbs)
Power Requirement	200 - 240 VAC single phase, 50/60 Hz, 4 kVA
Air Requirement	72 psi - 87 psi (5 - 6 bar)

Optional Accessories

Barcode Scanner, Repair Station, Offline Editor, Yield Management System (YMS 4.0), YMS Lite, CAD Converter, CT Imaging

TRI has a patent in System and Method for Laminography Inspection

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