

XStation HS™

In-Line High-Speed Automated X-Ray Inspection (AXI) System

- *Fastest throughput of any AXI system*
- *Triple the speed of X-ray Laminography*
- *Best image quality of any AXI system*
- *Lead-free solder inspection capable*
- *Provides full volumetric analysis of solder joints*
- *Fixtureless inspection for faster, lower cost test*
- *Improves product reliability by identifying structural faults not tested by other inspection methodologies*
- *Provides measurement data for trend analysis and process control*
- *Excellent diagnostic resolution for rapid debug and repair*



The XStation HS system provides electronics manufacturers with a high-throughput X-ray inspection solution with full volumetric analysis of solder joints, for maximum solder quality inspection and diagnostic resolution.

World's Fastest AXI Solution

The XStation HS™ inspection system is capable of providing uncompromising defect coverage at the speed of your line. Teradyne's transmission X-ray technique provides users with full volumetric analysis of solder joints at triple the speed of Laminographic X-ray inspection. Electronics manufacturers now have an X-ray inspection solution with the speed and fault resolution required to inspect the latest package technologies, including: BGAs, CSPs, and FCAs.

Teradyne's patented transmission X-ray is able to assess the entire volume of solder to provide a robust data set for detection of structural solder defects that lie outside the slice plane of Laminographic X-ray inspection systems.

The XStation HS™ provides a robust high-speed solution to meet the most rigorous quality and defect coverage requirements, at the speed of your line.

Higher Product Quality, Lower Development Costs and Faster Time to Market

By performing a true volumetric analysis of the solder joint, XStation HS ensures the structural integrity of the PCA, thus assuring long-term product reliability and reducing product returns. By eliminating the need for expensive test fixture development, the XStation HS can help drive down overall product development costs and improve time-to-market.

High-Performance Test Strategy

XStation HS can be implemented in a distributed test strategy with in-circuit test, flying prober or automated optical inspection systems. Strategist™, Teradyne's distributed test and inspection strategy tool, analyzes and distributes test coverage on double-sided assemblies to optimize fault coverage and diagnostic accuracy.

Full-Featured Analysis Software

X-VER™, Teradyne's repair verification module, facilitates fault diagnosis and repair tracking; by providing barcode associated electronic rework tickets. The rework data is communicated to the rework area via a standard network interface. Each virtual rework ticket includes CAD views of the board which graphically highlight the failure region; and an X-ray image of the fault area; each used to assist the operator in rapidly determining the required corrective action.

X-STAT™, Teradyne's Statistical Process Control (SPC)

module, provides real-time reporting of defects and false call information. X-STAT enables effective measurement of both X-ray inspection measurements and manufacturing production process trends by providing actionable graphical reports for continuous process improvement.

In addition, Teradyne's Strategist software automates the process of defining the coverage of each test and inspection solution early in the product design process while design changes can still be implemented. Strategist will then help implement the chosen test strategy on the production floor by generating the required data inputs for the relevant test and inspection systems.

Specifications	XStation HS 4010 Transmission AXI Maximum Clearance	XStation HS 4011 Transmission AXI Maximum Throughput	XStation HS 4005 Transmission AXI Maximum Resolution
Test Speed			
Load / unload	Average 6 seconds	Average 6 seconds	Average 6 seconds
Fiducial recognition	< 2 seconds	< 2 seconds	< 2 seconds
Test rate ⁽¹⁾ [total FOV ⁽²⁾]	Up to 3.50 in. ² (22.58 cm ²) per second	Up to 5.10 in. ² (32.9 cm ²) per second	Up to 1.10 in. ² (5.8 cm ²) per second
Surface map time	(Not required)	(Not required)	(Not required)
Performance			
Field-of-view (FOV)	1.0" (25.4 mm)	1.1" (27.9 mm)	0.56" (12.7 mm)
Max PCB size ^(3,4)			
- standard	19" L x 18" W (482 x 457 mm)	19" L x 18" W (482 x 457 mm)	19" L x 18" W (482 x 457 mm)
- optional	22" L x 18" W (559 x 457 mm)	22" L x 18" W (558 x 457 mm)	22" L x 18" W (558 x 457 mm)
Min PCB size ^(3,4)	2.0" L x 2.0" W (51 x 51 mm)	2.0" L x 2.0" W (51 x 51 mm)	2.0" L x 2.0" W (51 x 51 mm)
Edge clearance	0.15" (3.8 mm)	0.15" (3.8 mm)	0.15" (3.8 mm)
Max board thickness	0.25" (6.3 mm)	0.25" (6.3 mm)	0.25" (6.3 mm)
Min board thickness	0.020" (0.51 mm)	0.020" (0.51 mm)	0.020" (0.51 mm)
Max inspectable size ⁽⁴⁾			
- standard	19" L x 17.7" W (482 x 450 mm)	19" L x 17.7" W (482 x 450 mm)	19" L x 17.7" W (482 x 450 mm)
- optional	22" L x 17.7" W (559 x 450 mm)	22" L x 17.7" W (559 x 450 mm)	22" L x 17.7" W (559 x 450 mm)
Top side clearance	1.1" (27.9 mm)	0.5" (12.7 mm)	1.0" (25.4 mm)
Bottom side clearance	1.2" (30.4 mm)	1.2" (30.4 mm)	1.2" (30.4 mm)
Max. solder joints with 512 MB ram	50,000	50,000	50,000
Physical dimensions			
Footprint			
- without conveyors	59" W x 70" D (150 x 140 cm)	59" W x 70" D (150 x 140 cm)	59" W x 70" D (150 x 140 cm)
- with conveyors	112" W x 70" D (305 x 140 cm)	112" W x 70" D (305 x 140 cm)	112" W x 70" D (305 x 140 cm)
Weight ⁽⁶⁾			
Facility requirements: air	4500 lbs. (2045 Kg)	4500 lbs. (2045 Kg)	4500 lbs. (2045 Kg)
Facility requirements: power ⁽³⁾	100-120 psi compressed	100-120 psi compressed	100-120 psi compressed
	208 / 230 ±, 10% VAC, Single Phase, 30 AMP	208 / 230 ±, 10% VAC, Single Phase, 30 AMP	208 / 230 ±, 10% VAC, Single Phase, 30 AMP

(1) To estimate test time in transmission mode = (length) x (board width) / (fastest test rate)

(2) Useable FOV and inspection can vary by application.

(3) Board handling edge is length-wise.

(4) Specification provided for X-Y table, does not include external handling.

(5) The system when configured without shuttles has a minimum board length for automated loading of 8".

(6) Shipping weight add 455 Kg or 1000 lbs. Quoted weight is without conveyors, with conveyors add 909 Kg or 2000 lbs.



Because Technology Never Stops

Teradyne, Inc., Assembly Test Division
7 Technology Park Drive, Westford, MA 01886
TEL: +1.978.589.7000 FAX: +1.978.589.2064

www.teradyne.com/cbti

Teradyne reserves the right to change specifications without notice. Appearance of the final, delivered product may vary from the photographs shown herein. XStation, X-VER, X-STAT and Strategist are trademarks of Teradyne, Inc. Other product names are trademarks of their respective manufacturers.