

High-speed automated X-ray CT inspection system

VT-X750

OMRON



VT-X750

In-line Full Inspection System

Best quality @min.Q-cost



VT-X750

Best Quality at the Minimum Q-cost.



Productivity
Capability
Safety
Security

Innovation to maximize ROI.



VT-X750 Case Study

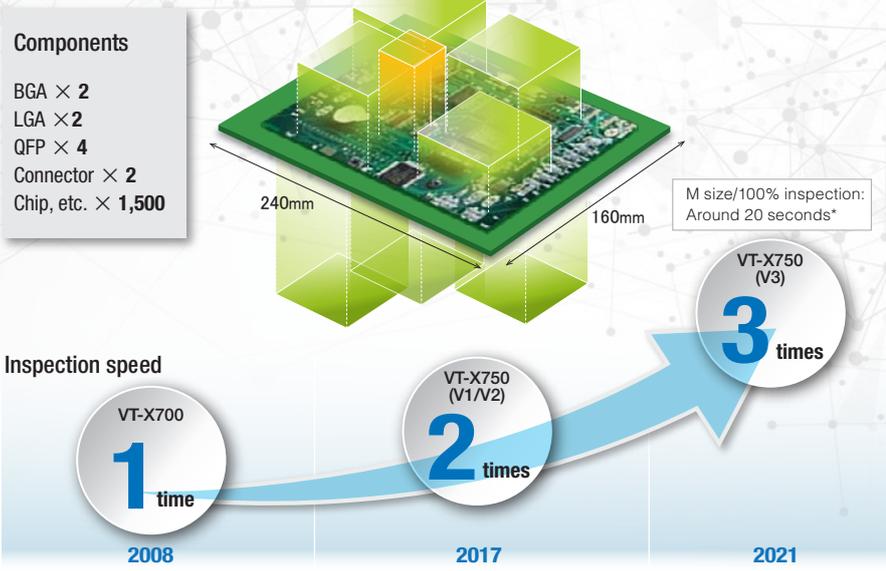
The X750 is used for non-destructive inspection of 5G infrastructure/modules and in-vehicle electrical components as a high-definition, high-quality inspection using full 3D-CT. In recent years, the VT-X750 has been used for inspection of solder voids and solder filling of through-hole connectors in final assembly of power devices such as IGBTs and MOSFETs, which are essential for EVs, as well as Integrated machine and electric power. It has also been widely utilized in the fields of aerospace, industrial equipment, and semiconductors.



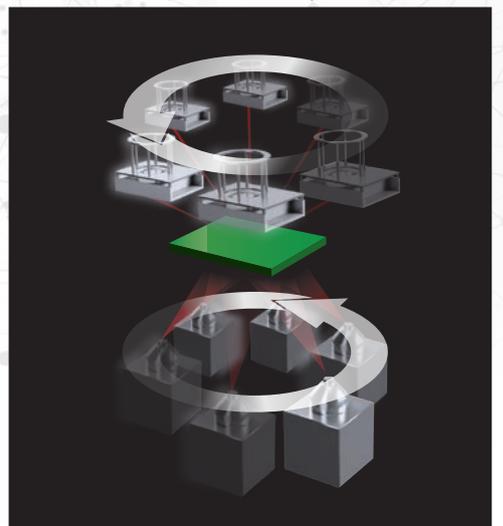
P Productivity

In-line full inspection coverage Omron Patent

The VT-X750 improves upon previous Omron 3D-CT technology making it the fastest X-Ray inspection system to date *1. The automated inspection logic has been improved for many parts such as IC heel fillets, stacked devices (PoP), through hole components, press-fit connectors, and other bottom terminated parts. Increasing automated inspection speed and expanding inspection logic enables full, in-line inspection coverage by 3D-CT method.



*1. By an internal investigation in October, 2021.



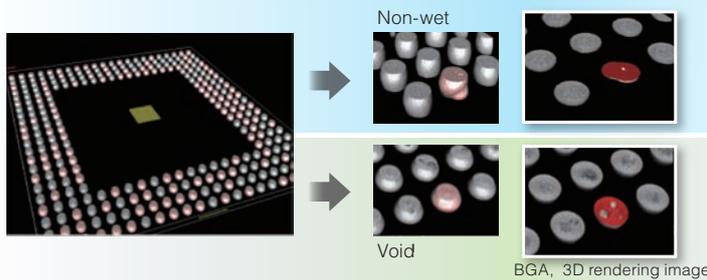
* Time for all PCB inspection of M size substrate. Excluding PCB load and unload time. It is the 3D inspection time both sides of board including 2 pieces BGA which has 2,000 to 3,000 pins, or SiP.

C Capability

Visualize solder joint strength

OMRON's unique 3D-CT reconstruction algorithms provide excellent solder shape recognition and defect detection. Quantitative analysis allows for an automated inspection process which minimizes the risk of escapes while providing fast and repeatable operation.

Visualize solder joint strength



Design constraint free

Dense and dual sided board design can provide challenges for X-Ray inspection. However, Omron's 3D-CT technology can overcome such design restraints.

AI Dynamic Approach using Omron AI

Criteria setting by Auto-Judge reduces **Patent Pending** the dependency on a dedicated programmer

This dynamic approach enables a comprehensive analysis using **Omron AI** with quantitative decision making based on conventional inspection standards for OK / NG judgment. (3D cross-sectional display functionality has been integrated into the screen, making the inspection criteria settings easier to understand.)

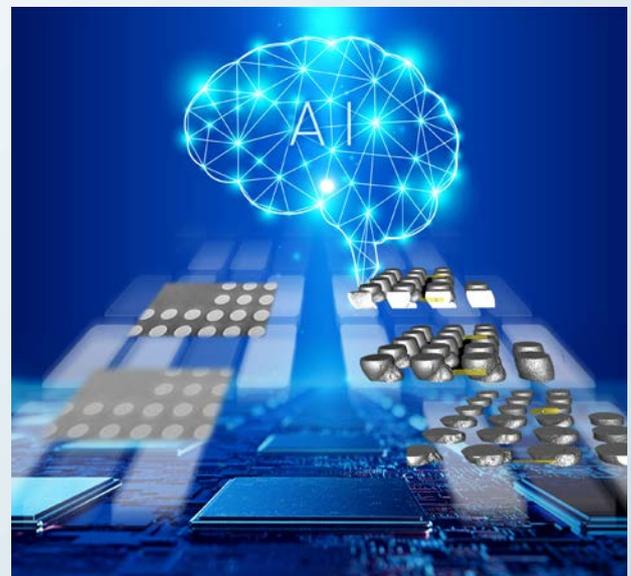
Faster creation of new programs **Omron Patent**

Omron AI assists in the quick creation of new programs. Along with automated program generation using CAD data, **Omron AI** automatically tunes the parts library using inspection result data.

Accelerated simulation for production preparation **Omron Patent**

Omron AI simulates the optimum tact and exposure dosage for each part and automatically determines the corresponding conditions for the X-ray inspection process.

* Simulation pertains to specific parts.

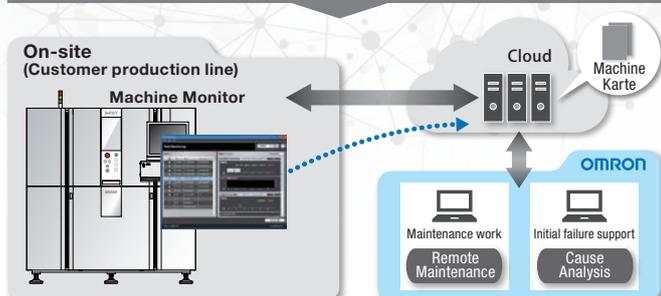


S Safety

Zero down time

To achieve "Never stop the production line = Zero downtime", OMRON provides global support for customer operations with a full range of maintenance services, including machine monitoring for predictive maintenance and remote access for emergency support.

Remote Maintenance System Monitor machines with the Machine Monitor to reduce downtime to a minimum.



S Security

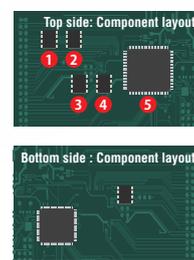
Reduction of product radiation exposure

• High speed and low radiation imaging technology

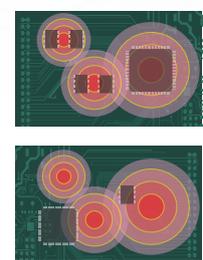
A filter that reduces the effects of radiation exposure has been installed as standard, and concerns about radiation exposure, especially to memory components, have been minimized by realizing high-speed imaging.

• Parts radiation exposure simulator **Omron Patent**

The exposure of each component on the top side and bottom side of PCB can be simulated with high accuracy.



PCB info



Top/Bottom sides radiation dose display

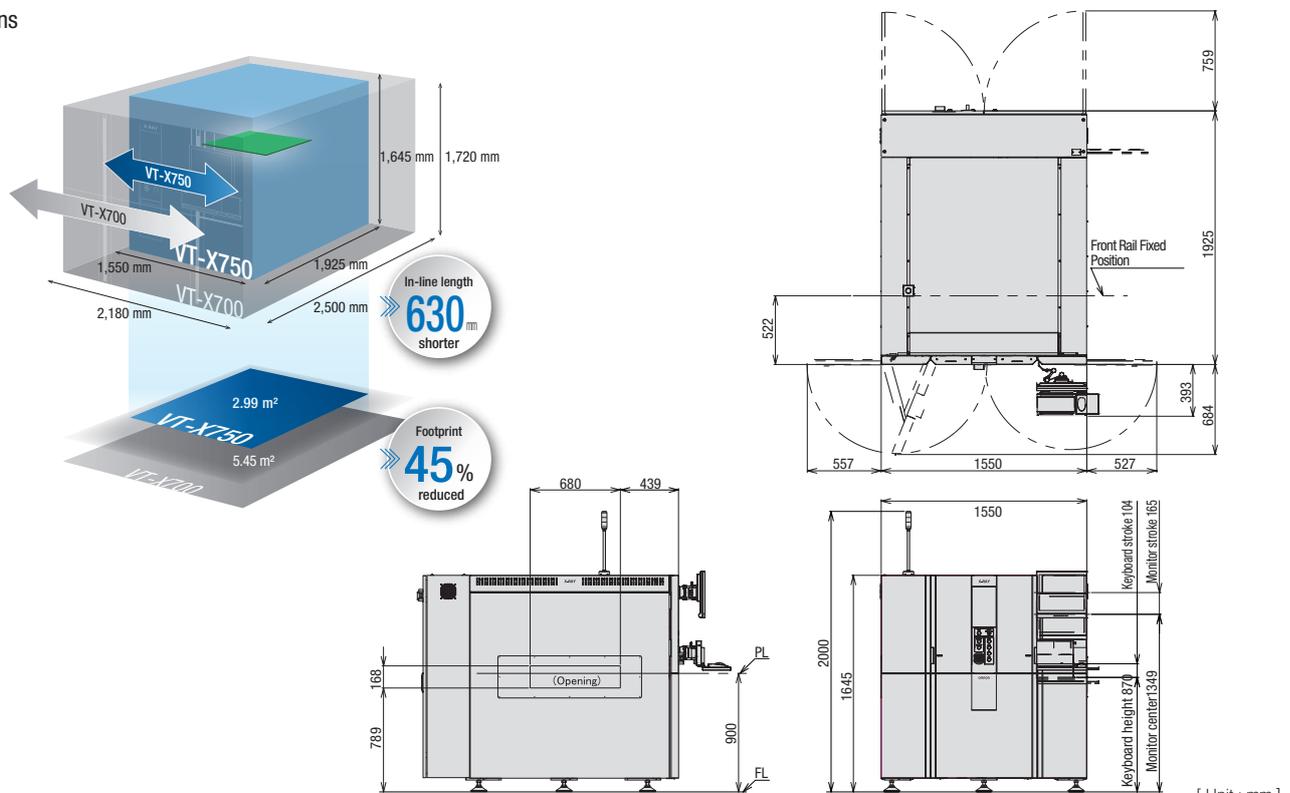
Specifications

■ Hardware configuration / Function

Item		Description		
Model		VT-X750		VT-X750-XL
Type		V3-H	V3-C	V3
Inspection object		BGA/CSP, inserted components, SOP, QFP, transistors, R/C chips, bottom-side terminal components, QFN, Power devices, POP, Press-fit CN, etc.		
Inspection items		Void, open, non-wet, Solder Volume, shifting, foreign object, bridging, Solder fillet, TH Solder filling, Solder ball, etc. (selectable to applications)		
Imaging system	Method	3D-slice imaging by using parallel CT		
	Resolution	6, 8, 10, 15, 20, 25, 30 μ m/pixel (selectable in the inspection program)	3, 6, 8, 10, 15, 20, 25, 30 μ m/pixel (selectable in the inspection program)	10, 15, 20, 25, 30 μ m/pixel (selectable in the inspection program)
	X-ray source	Micro-focus closed tube		
	X-ray detector	Flat panel detector		
PCBA	Size	50x50~610x515mm (2x2 to 24x20 inch), Thickness:0.4~5.0mm (0.4~3.0mm in 3 μ m resolution)		100x100~1200x660mm, Thickness:0.4~15.0mm
	Weight	Less than 4.0 kg, less than 8.0 kg (option)		Less than 15kg
	Component clearance *Maximum	Top: 40 mm, 90 mm (option)		Top: 40 mm, Bottom: 50 mm
	Warpage	Less than 2.0 mm (Less than 1.0 mm in 3 μ m resolution)		Less than 3.0 mm
Main body	Footprint	1,550(W) x 1,925(D) x 1,645(H) mm		2,180(W)x2,510(D)x1,735(H)mm
	Weight	Approx. 3,100kg		Approx. 5,350kg
	Conveyor height	900 \pm 20 mm		
	Power supply	Single phase, 200 to 240 VAC, 50/60 Hz		
	Rated power	2.4kVA		2.58kVA
	X-ray leakage	Less than 0.5 μ Sv/h		
	Air supply	0.4 to 0.6 Mpa		
	Safety standard	CE, SEMI, NFPA, FDA		CE, FDA

Dimensions

■ VT-X750



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EtherCAT® is registered trademark and patented technology, licensed by Beckhoff Automation GmbH, Germany.

- This document provides information mainly for selecting suitable models. Please read the Instruction Sheet carefully for information that the user must understand and accept before purchase, including information on warranty, limitations of liability, and precautions.
- This product may cause interference if used in residential areas.

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