

X-Ray Inspection System X-5600



Applications of X-Ray

X-Ray inspection system is high-precision detection equipment. It **inspects and analyzes** the inner structure of the object without damage via the penetration power from X-Ray.

It has been widely applied to BGA detection, LED, SMT, semiconductor, battery, automotive electronics, ceramic products, casting, plastic, connectors, pharmaceutical products and other industries.

Specific application:

- 1) Defect inspection in **IC encapsulation**, e.g.: layer separation, cracking, void, and line integrity.
- 2) Measuring **chip size**, measuring **line curvature**, measuring the **proportion of solder area of components**.
- 3) Possible defects in **PCB manufacturing processes**, e.g.: misalignment, solder bridge and open.
- 4) **SMT** solder short, cold solder, component shifted, solder insufficient, solder void **inspection and measurement**.
- 5) Defect inspection of open, short or abnormal connections that may occur in **automotive wiring harnesses and connectors**.
- 6) Inner rupture or hollow inspection in **plastic or metal**.
- 7) **Battery** stacking uniformity, electrode welding inspection.
- 8) **Seed, biological material** inspection etc.

Main Functions

Function	Advantages
X-ray tube and detector can move along Z direction	Fault less than 2.5µm can be detected.
Voltage and current set by software	Easy to maintain, long service life.
Speed of table moving along X-Y direction can be adjusted.	Easy operation, training time for operator is short.
Powerful CNC Measuring Function, can test automatically, testing program can be edited.	Suitable for mass detection
High-definition digital flat panel detector.	semi-automatic identification for OK/NG products.
Large navigation view, table will move to where you click the mouse.	Highly reliable and high-precision test
Latest image processing technology, can numerically calculate the size of the defect and area size.	Suitable to different samples with large sizes.
Accurately detect insufficient solder/cold solder and blob ratio of PCB board, can also calculate the size, import the result into the sheet and display on the screen.	samples can be observed with a unique perspective

Technical Parameters

Items		Contents
Model		X-5600
Japan Hamamatsu X-RAY launch tube	Tube type	Closed X-ray tube
	Maximum tube voltage	90kV
	Maximum tube current	0.2mA
	Focal spot size	15 μ m
	Magnification	Geometric magnification: 75X System magnification: 80X
Korea Rayence Flat Panel Detector	Image speed	20 fps
	Resolution	1176*1104
	Inclined Angle	-
Cabinet Specifications	Table size	250mm*250mm
	Dimension	Length: 930mm, width: 710mm, height: 1070mm
	Net weight	350kg
	Input voltage	AC 110-220V (\pm 10%) (international standard power supply)
X-ray leakage amount		\leq 1 u Sv/h
Operating system		Windows 7 Seamark3.0
Total power		1500W

Standard Configuration

Name	QTY	Unit	Remark
90KV-15um Closed X Tube	1	Pcs	-
Object Table	1	Pcs	size: 250mm*250mm
Flat Panel Detector	1	Pcs	HD
Image processor CPU	1	Pcs	Complete function
LCD	1	Pcs	24"

Object Table Control

1. Speed of table can be adjusted by the spacebar: low, normal and high speed.
2. X, Y, Z three-axis motion and inclined angle are controlled by keyboard.
3. Users can control the table speed and angle programmatically.
4. Large navigator view, clear navigation image, table will move to where you click the mouse.

CNC Programming

1. Simply click the mouse and you can write programs.
2. Object table moves along X, Y direction for positioning; X-ray tube and detector move along Z direction for positioning.
3. Voltage and current set by software.
4. Image settings: brightness, contrast, auto gain and exposure
5. Users can change the pause time for program conversion.
6. Anti-collision system can maximize the tilt and observation of the workpieces.
7. Automatical analysis on diameter, proportion of cavity, area and roundness of BGA.

Full Automatic Testing Procedures

Click programming without the need for operator intervention on the component can detect automatically.