Trident Electronics Technologies Pte Ltd
1, Scotts Road , #24-09 Spore 228208 Website : www.tridentet.com Tel : 65 67383922 Fax: 65 27383926 Email: sales@tridentet.com

X-Ray Inspection System X-7800

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, 3D image analysis, 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	Detection accuracy is close to 1 μm
Voltage and current set by software	Easy to maintain, long service life.
Speed of stage 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. Max Inclined Angle is 60°	semi-automatic identification for OK/NG products.
Large navigation view, stage will move to where you click the mouse.	Highly reliable and high-precision test. Greater Magnification, clearer image
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 and display on the screen.	No need to incline samples, samples can be observed with a unique perspective
360 ° rotation Object stage, 7-linkage	Facilitate testing samples, observed more easily

Technical Parameters

Items		Contents
Model		X-7800
Japan Hamamatsu X-RAY launch tube	Tube type	Closed X-ray tube
	Maximum tube voltage	130kV
	Maximum tube current	0.15mA
	Focal spot size	3μm
	Magnification	Geometric magnification：200X System magnification：1000X
Korea Rayence Flat Panel Detector	Image speed	35 fps
	Resolution	1500*1500
	Inclined Angle	Table 360° RotationDetector 60°
Cabinet Specifications	Stage size	500mm*500mm
	Dimension	Length: 1630mm, width: 1850mm, height: 1650mm
	Net weight	1800kg
	Input voltage	AC 110-220V (±10%) (international standard power supply)
X-ray leakage amount		≤1 u Sv/h
Operating system		Windows 7 Seamark3.0
Total power		2500W

Standard Configuration

Name	QTY	Unit	Remark
130KV-3um Closed X Tube	1	Pcs	-
Object Table	1	Pcs	size：500mm*500mm
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.
5. Table can rotate clockwise and anticlockwise via press ‘S’ and ‘D’.

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NC 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.