Model：X6600 (General economic version)

Name：Microfocus X-RAY Inspection System

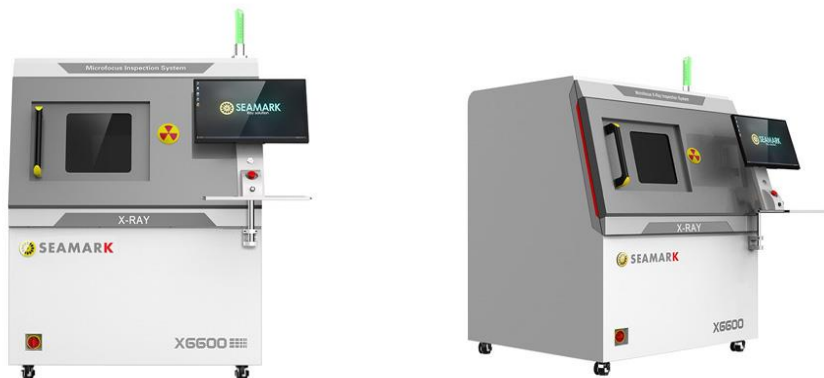

Manufacturer：Shenzhen Zhuomao Technology Co., Ltd

Professional X-RAY Inspection System Manufacturer

X-Ray Solution X6600

Microfocus X-Ray Inspection System Manufacturer

(1) Applications

1: Semiconductor	2: Automotive electronics	3: PCB'A	4: LED
5: BGA/QFN inspection	6: Aluminum die casting	7: Mould	8: Electrical and mechanical components
9: Biological agriculture seed	10: Aviation component	11: Wheel hub	12: Wire/USB/Plug

(2) Functions and Features

Function	Advantages
X-ray tube and detector can move along Z direction, Speed of table moving along X-Y direction can be adjusted.	Larger effective detection range, improving the magnification and the detection efficiency of the product.
High-definition digital flat panel detector. Max Inclined Angle is 65°, samples can be observed with a unique perspective	Easy to identify the side defects of the product and achieve no dead angle detection.
Long life X-ray tube, maintenance free for life	Adopt the world's top Japanese Hamamatsu X-ray source
Fault less than 2.5μm can be detected.	Easy to distinguish the gold wire bending

High detection repeat accuracy.	and break of the semiconductor package.
Powerful CNC Measuring Function, can test automatically, testing program can be edited.	Suitable for large-scale inspection and improve detection efficiency.
Large inspection space, can put various large-sized samples. The table can carry 10KG items.	Large table for large industrial control boards, ultra-long LED strips, and electronic products for various fields
Large navigation view, table will move to where you click the mouse.	Very easy to operate, quickly find item defects and improve detection efficiency

(3) Hardware Technical Parameters

X-Ray Solution X6600 Hardware technical parameters			
H A R D W A R E	X-RAY tube	Tube type	Sealed microfocus X-ray tube
		Tube voltage	40-90kV
		Tube current	10-200uA
		Focal spot size	5-15μm
		Cooling method	Convection cooling
	Detector	Detector type	HD digital flat panel detector (FPD)
		Imaging area	130mm*130mm
		Pixel matrix	1536*1536 pixels
		Inclined Angle	0-60°
	Inspection speed and accuracy	Repeated test accuracy	3μm
		Software inspection speed	3.0s/point (Excluding loading and unloading time)
	Table	Standard size	540mm*440mm
		Effective inspection area	500mm×410mm
		Load capacity	≤5Kg
	CNC programming	Test parameters for different products can be stored in categories and called at any time. You can set the detection route or sequence of one or more products, and the program automatically completes the detection and stores the photos.	
	Operating platform	Mouse, keyboard, 2 operating modes	
	Shell	Inner lead plate	5 mm thick lead plate (isolate radiation)
		Dimensions	1245mm(L) * 1230mm(W) * 1900mm(H)
		Weight	1170Kg
	Other parameters	Computer	24 inches Widescreen LCD/I3 CPU/2G Memory/200G hard disk
		Power supply	AC220V 10A

		Temperature and humidity	22±3℃ 50%RH±10%RH
		Total power	1500W
	Safety	Radiation safety standard	Adopt steel-lead-steel protection structure. Any position 20mm from the shell, radiation≤1μSV/H, in line with international standards
		Safety interlock function	Two high-sensitivity limit switches are set in the door opening position for equipment maintenance. Once the door is opened, the X-ray tube will automatically power off immediately.
		Electromagnetic switch protection	The observation window has an electromagnetic switch, and the observation window cannot be opened when the X-ray tube is in working state.
		Observation window	With an observation window, the sample can be observed directly from the window while the machine is running.
		Emergency stop	The emergency stop is set in the prominent position of the operation console and the equipment body, can be pressed to quickly cut off the power supply system.
		X-ray tube automatic protection	Five minutes after the machine has no operation, the X-ray tube will automatically power off and enter the protection state.
		Automatic machine protection	Once any door or window of the machine is turned on, the machine immediately enters the shutdown protection state, and any operation cannot be performed.

(4) Software technical parameters

X-Ray Solution X6600 Software technical parameters			
Full-featured X-ray image analysis software, including image contrast enhancement and filtering functions, measurement functions, and CNC programming			
S	Bad welding judgment	BGA short	Preset NG images, software contrasts and recognizes automatically
O		BGA cold solder	Preset NG images, software contrasts and recognizes automatically
F		BGA voids	Preset NG images, software contrasts and recognizes automatically

T W A R E		BGA false solder	Preset NG images, software contrasts and recognizes automatically
	CNC function	Motion mode programming (CNC)	Test parameters of different products, can be classified and stored, call at any time
			Can set the inspection route or sequence of one or more products
	Navigation window	The picture of the table is displayed on the screen in real time, Click any position of the picture to control the movement.	
	Voids measurement	Voids rate measurement	Optional manual/automatic measurement, single/multi-ball measurement mode. The bubble area standard can be preset for automatic measurement.
		Report generation	The judgment result can be directly marked on the picture, or directly generate a CSV file or a report document according to the analysis results.
	Measurement function	Area measurement	Preset area size standard, NG product prompt function.
		Size measurement	Distance, gold line curvature, slope, angle, etc.
	Motion control	Automatic positioning	Power on table auto zero function, system reset
		Batch test	Import pre-production program to realize fast automatic positioning function, convenient for large-scale inspection and product series management
		Field of view switching	The interface can be quickly switched between 2 inches and 4 inches to realize the two detection requirements of large field of view browsing and partial detail observation, saving detection time and improving detection efficiency.
		Control mode	CNC Automatic control, manual control keyboard, mouse, 3 modes are optional.
	Auxiliary positioning	Laser positioning	Red dot laser positioning, double auxiliary, easy to navigate

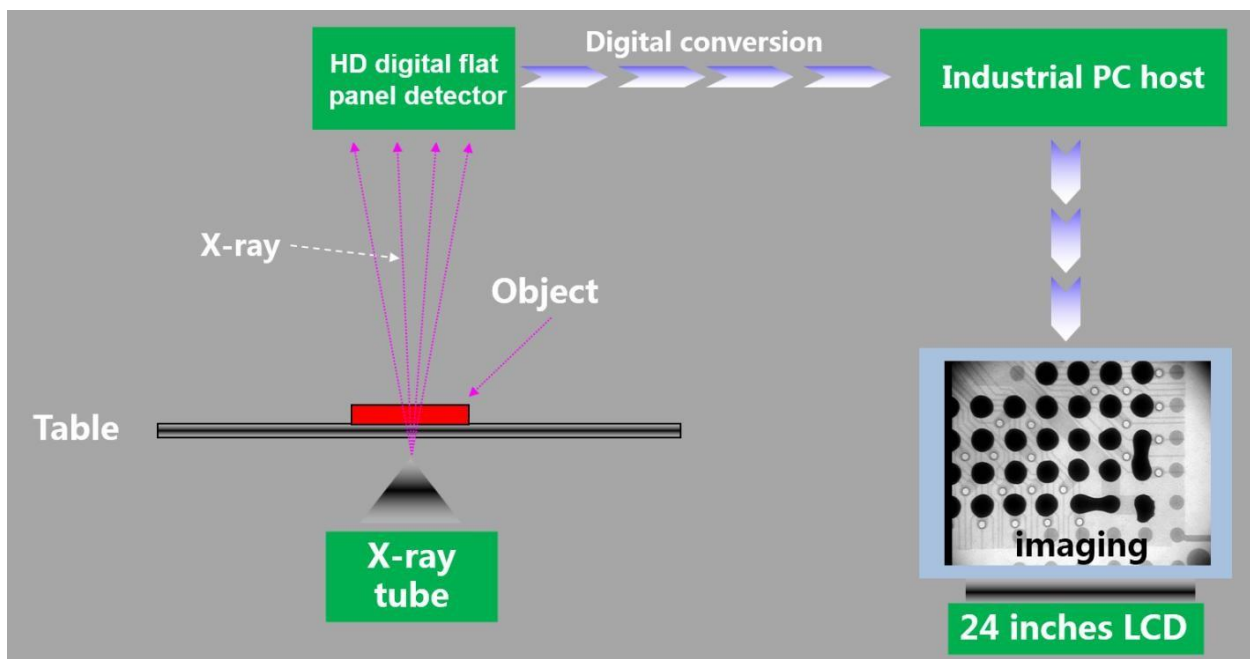|	Navigation magnifier	It can enlarge the product detection points in the navigation window, which is easy to accurately locate and improve the detection efficiency.

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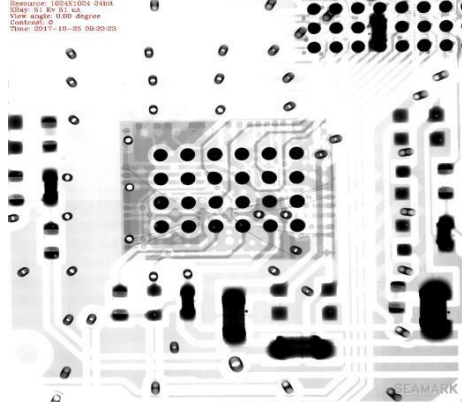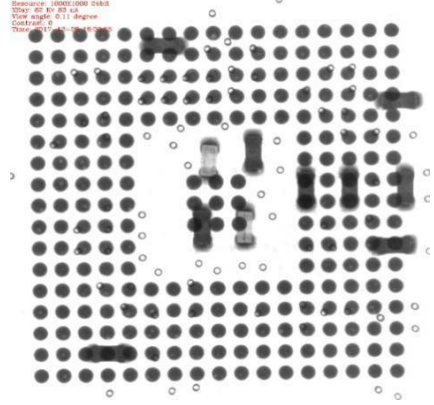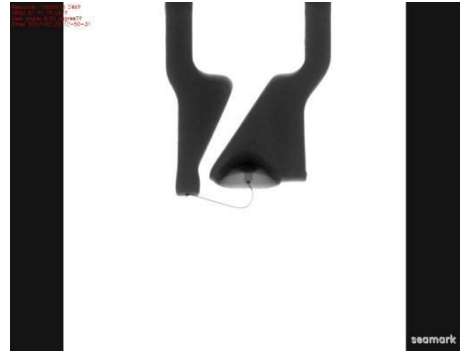3. Large navigator view, clear navigation image, table will move to where you click the mouse.
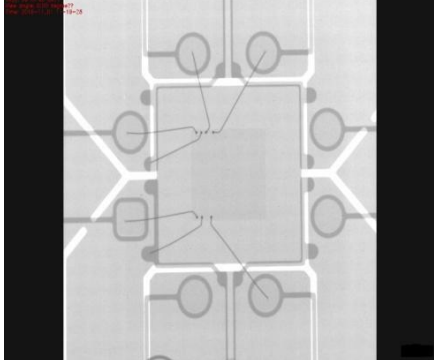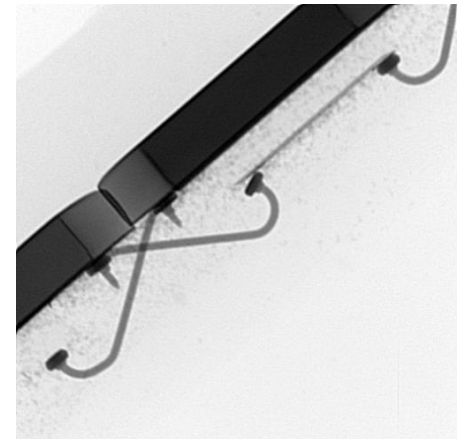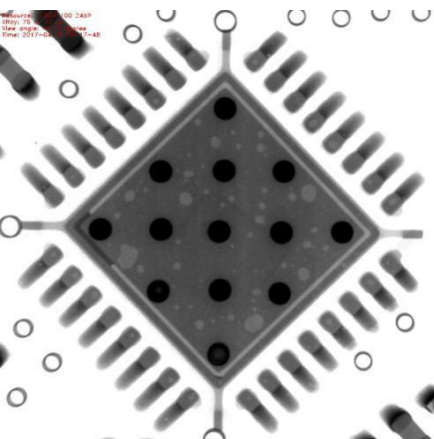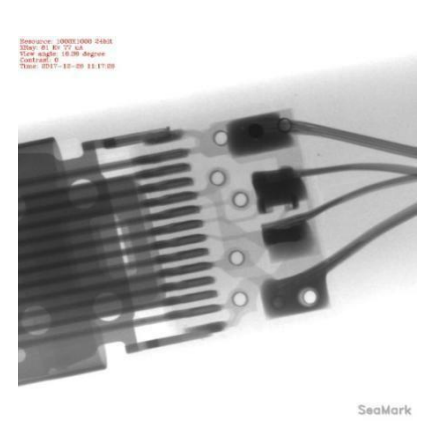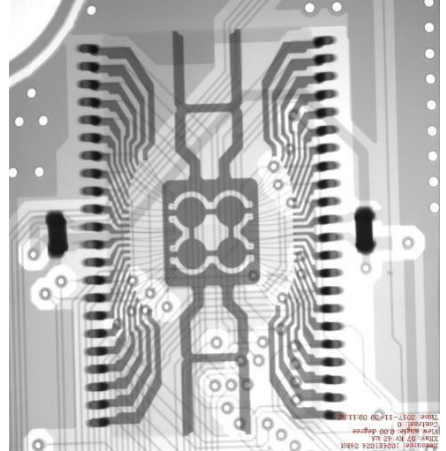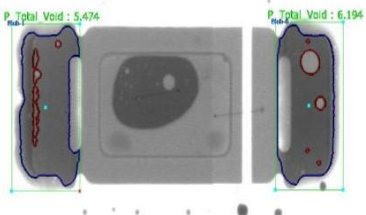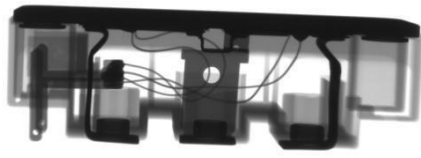
(6) CNC Programming
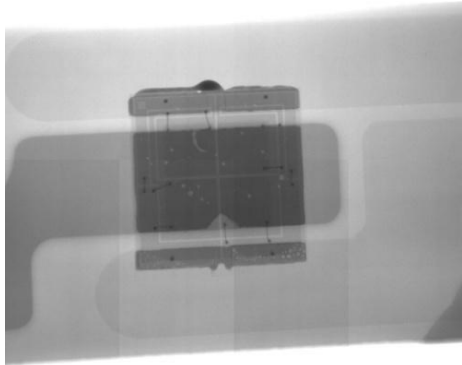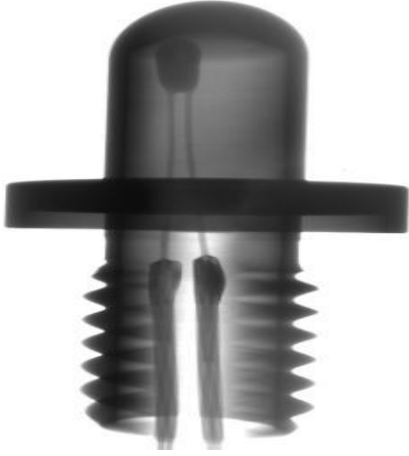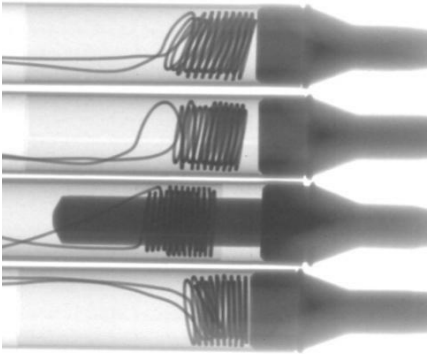
1. Simply click the mouse and you can write programs.
2. Object table moves along X, Y direction for positioning; X-ray tube and detector move along Z direction for positioning.
3. Voltage and current set by software.
4. Image settings: brightness, contrast, auto gain and exposure
5. Users can change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

(7) X-Ray Working Principle

（8）X-RAY applications

PCB BGA	PCB BGA	iPhone camera
Diode	**IC gold wire**	**Connector**
LED bonding wire	**IC voids**	**USB connector**

LED light	Thermal sensor	Diode capacitance
Soldering iron	**iPhone mainboard**	**Chip gold wire**
LED light voids	**High power semiconductor IGBT module**	**Luxury clothing fastener voids**

Too many application cases to illustrate.