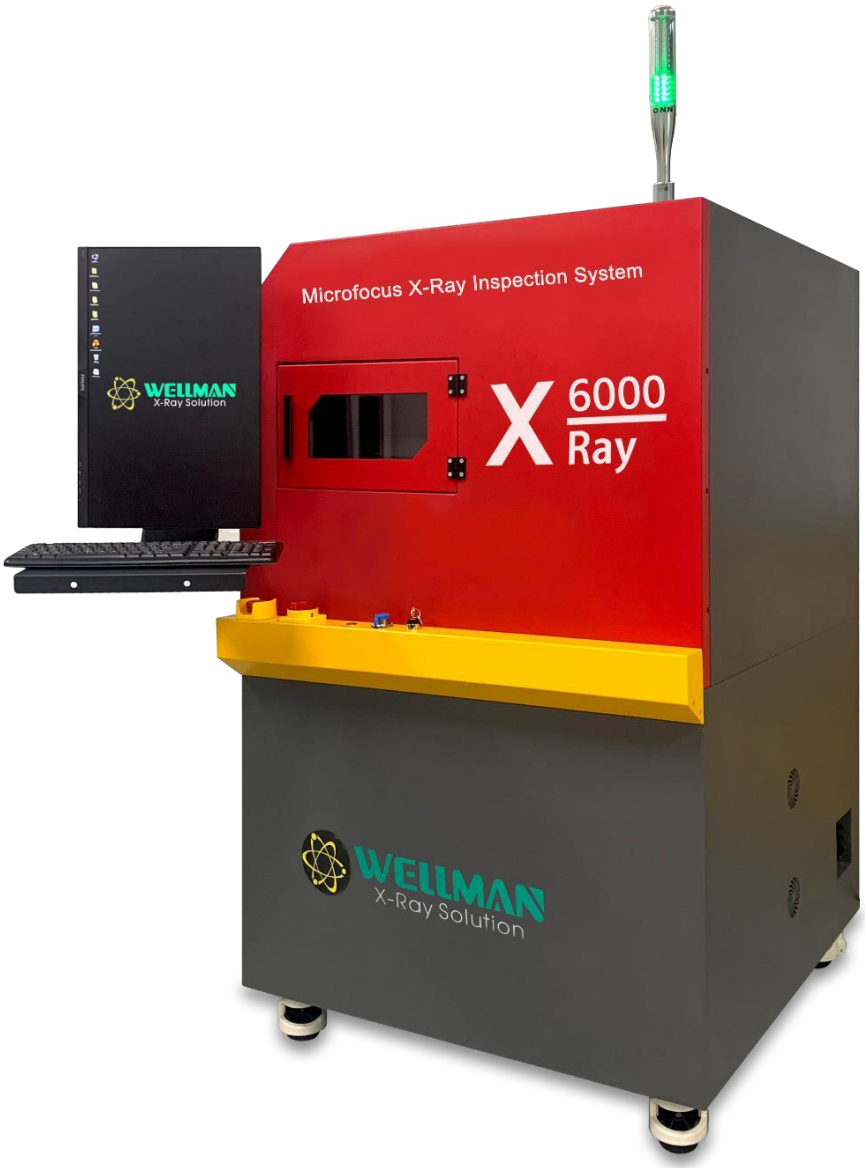
Product Introduction

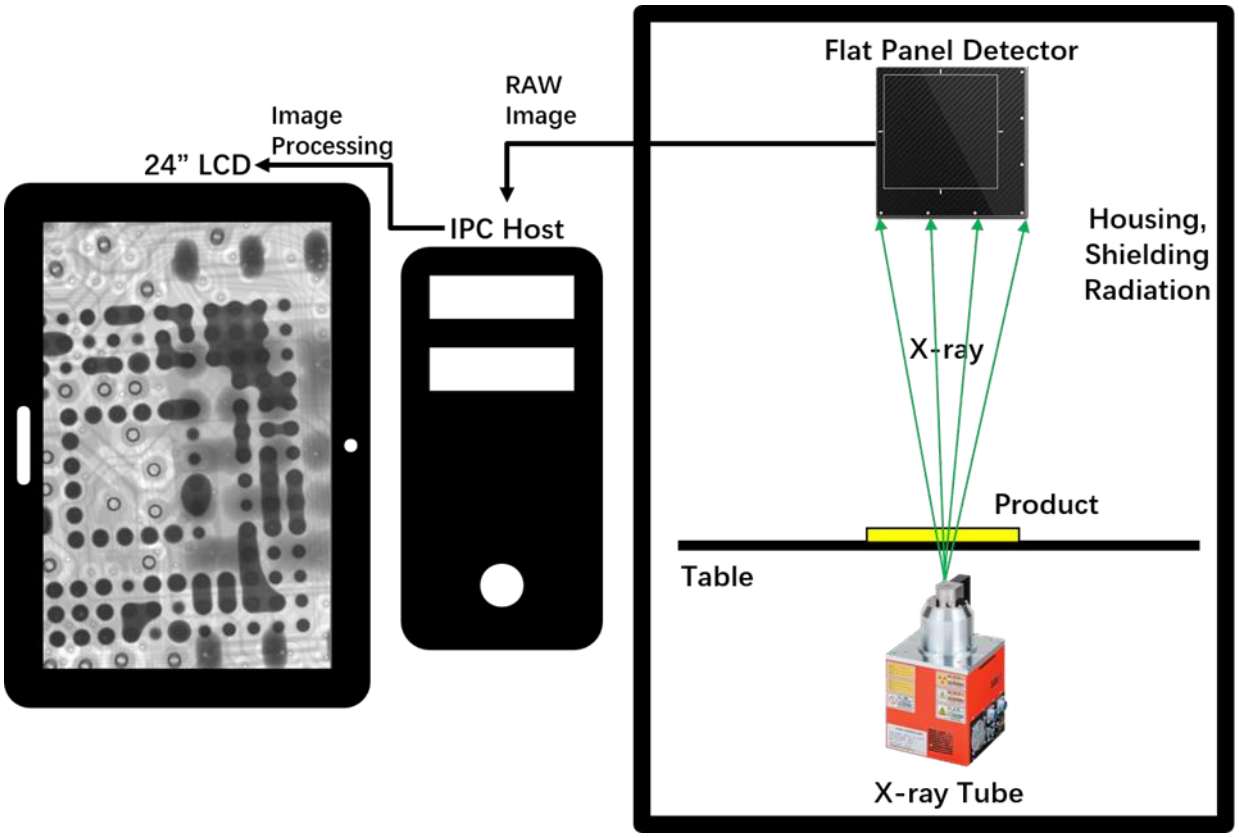


Microfocus X-Ray Inspection System X6000

Shenzhen Weiming Photoelectricity Co., Ltd

Microfocus X-Ray Inspection System Leader

1. Working Principle



2. Our Advantages

2.1. Japan Hamamatsu X-ray tube, the best closed type X-ray tube in the world, with more than 10000 hours lifetime, maintenance-free.

2.2 New generation 5" HD digital flat panel detector (FPD).

2.3. Automatic navigation window, the table will move to where you click.

2.4. 420*420mm table with 15KG load capacity.

2.5. Speed adjustable 3 axis linkage system.

2.6. Can edit inspection procedures to achieve automated inspection in large quantities.

2.7. 360° rotary jig optional, can inspect the product from different angles.

2.8. Easy to operate, can quickly find defects, only need 2 hours to train.

3. Hardware Parameters

X-ray source	Brand	Japan Hamamatsu	
	Type	Closed, microfocus	
	Max tube voltage	90kV	
	Max tube current	200μA	
	Focal spot size	5μm	
	Function	Auto preheat	
Flat panel detector	Effective area	130mm*130mm	
	Pixel size	85μm	
	Resolution	1536*1536	
	Frame rate	20fps	
Table	Size	420mm*420mm	
	Detectable area	400mm*400mm	
	Max load	15kg	
Equipment	Magnification	Geometry 150X	System 1500X
	Inspection speed	Max 3.0s/point	
	Dimensions	1100mm (L) * 1000mm (W) * 1600mm (H)	
	Weight	1000kg	
	Power supply	AC110-220V 50/60HZ	
	Max power	1300W	
	Industrial PC	Intel I5 CPU, 8G RAM, 240GB SSD	
	Displayer	24” HDMI LCD	
Safety	Radiation leakage	No leakage, international standard: ≤1μSv/h	
	Lead glass observation window	Transparent lead glass window shields radiation to observe the inner status.	
	Window and back door safety interlock	Once users open the window or back door, X-ray tube will power off immediately. When the window or back door is open, users can’t turn on the X-ray.	
	Electromagnetic safety switch	Lock once the X-ray is on, users can’t open the observation window.	
	Emergency stop	Next to the operation position, press to power off	

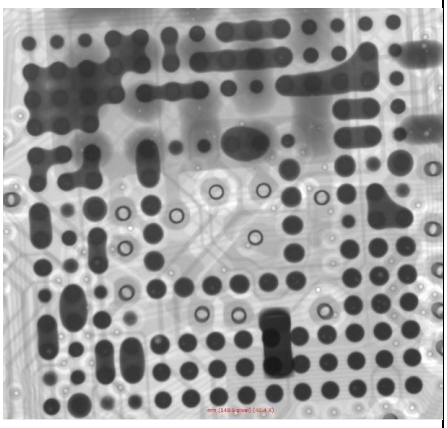
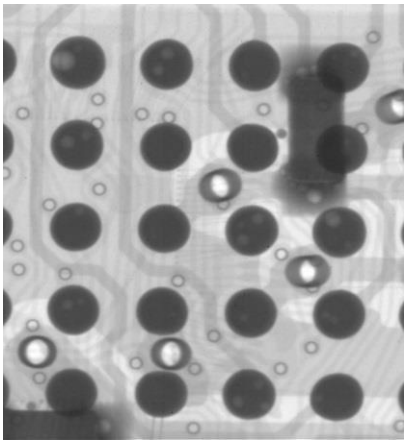
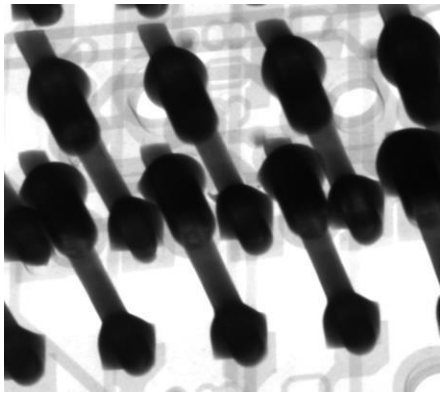
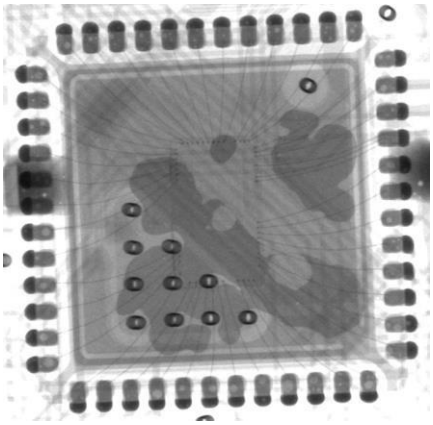
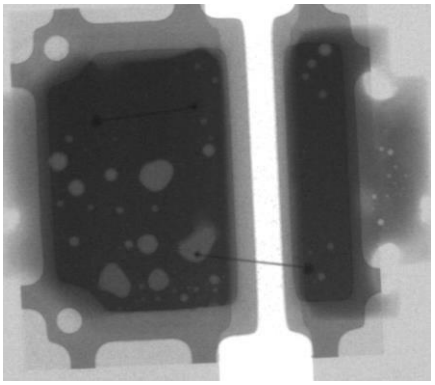
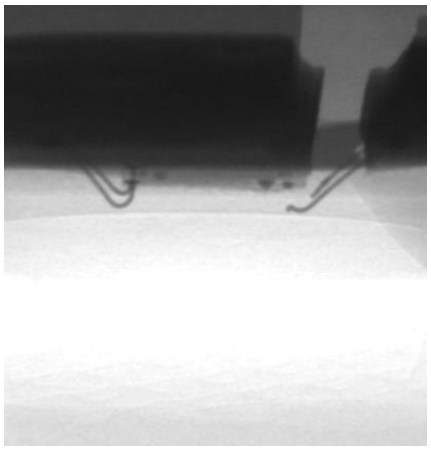
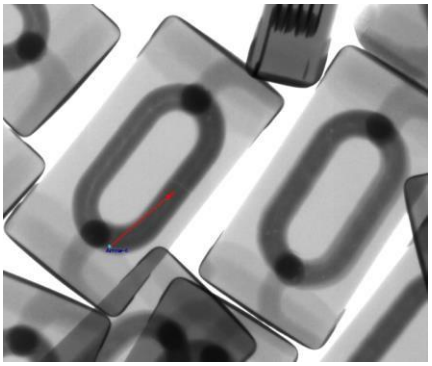
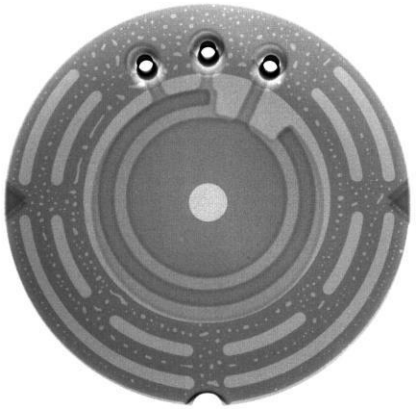
	Tube protection	User can't leave the software to if you don't close the X-ray tube.

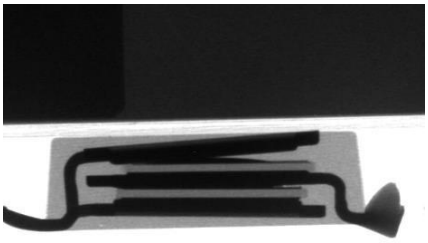
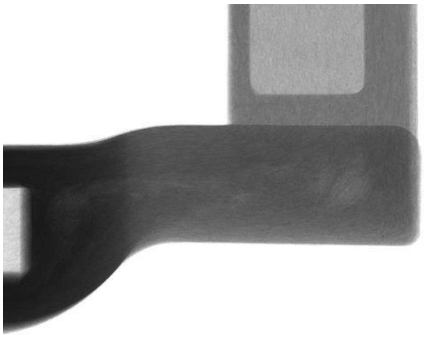
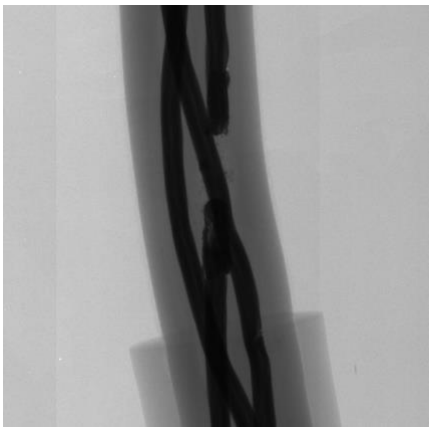
4. Software Function

Function module	Operation	Keyboard and mouse can finish all operations
	X-ray tube control	Using mouse to click the X button can turn on or off the X-ray. The real-time tube voltage and current value will display beside, users can click up and down button, or drag the slider, or type to adjust.
	Status bar	Indicates the interlock status, pre-heat status, and X-ray status by flashing alternately red and green.
	Image effect adjustment	The brightness, contrast and gain of the image can be adjusted freely to achieve a satisfactory result.
	Product list	Users can save the inspection parameters such as Z-axis position, brightness, contrast and gain, and can directly call the parameters when inspecting the same product, to improve the inspection efficiency.
	Navigation window	After the camera takes a photo of the table, click anywhere in the photo, the table will move to the place you click and display on the screen.
	Motion axis status	Display real-time coordinates.
	Inspection result	The measurement results (voids rate, distance, area, etc., set by users) display in order.
	Speed control	The movement speed of each axis can be adjusted to slow, normal and fast.
Voids rate measurement	Automatic calculation	Click on two points to determine a rectangle. The software automatically finds and measures the edge of the solder ball in the rectangle, the pad and the internal voids, and can get the data of the voids rate, the area of the solder ball, the circumference, the biggest void's rate, the length and the width, and indicates NG or OK by red and green.
	Parameters adjustment	Users can adjust the grayscale threshold, pixel, contrast, size filtering and other parameters to get accurate results of automatic calculation.
	Add voids manually	Users can draw a polygon or a free figure and calculate it as a void into the void rate.
	Save parameters	Users can save parameters such as grayscale threshold, pixel, contrast, size filtering and other

		parameters, and can directly call the parameters when detecting the same product, to improve the detection efficiency.
Other measurement function	Distance	Click the A and B points to set as the baseline, then click the C point to measure the vertical distance from the C point to the baseline.
	Distance rate	It is mostly used to measure the soldering rate of the through-hole. Set one more point “D” than the distance. Divide the vertical distance from the D point to baseline by the vertical distance of the C point, to obtain the percentage ratio of the vertical distance of D to C.
	Angle	Click the A and B points to set as the baseline, then click the C point to measure the angle between the BA and BC rays.
	Radius	It is mostly used to measure round components such as solder balls. Click three points to determine a circle and measure the circumference, area and radius.
	Perimeter	It is mostly used to measure square components, click two points to determine a square, measure the length, width and area.
Automatic inspection	Manual setting	Users can set any positions on the table as inspection points, the software will automatically inspect and save the picture.
	Array	For the regular inspection points, users only need to set two of the inspection points and the number of rows and columns, the software will automatically inspect each point and save pictures.
	Automatic identification	For inspection points with obvious features, the software automatically identifies the positions, takes measurements, and saves the image.

5. Application Example

BGA solder bridge	**BGA solder voids**	**PCB through-hole**
		
IC voids and gold wire	**LED solder voids**	**LED gold wire crack**
		
Capacitor	**Inductor**	**Sensor**
		

Thyristor surge suppressors	Fiberglass	Cable
		
Diode	**Steel pipe welding gap**	**Automobile electronics**