

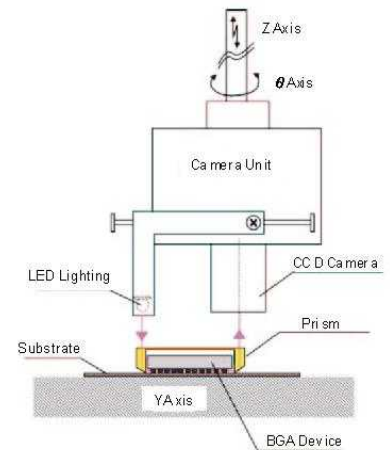
MS5000 Soldering Auto Visual-Inspection Unit

(Patent Pending)



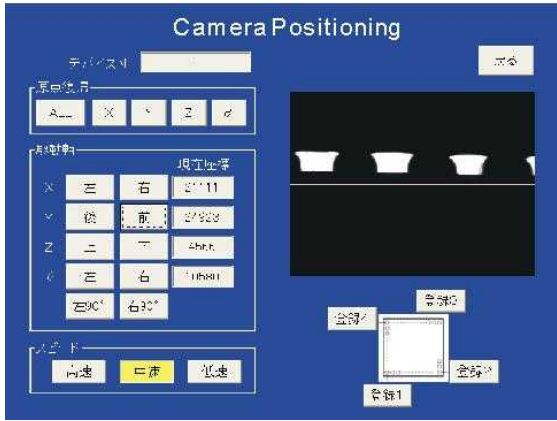
A strong support for your BGA inspection process

- * Abnormal shapes of BGA soldered balls are distinguished by image data processing, and their results are calculated as numeric data.
- * After you set the substrate and click Start, the unit moves to the specified point at a fixed speed and pitch.
- * The unit is able to inspect the difference in the height of BGA soldering after a chip is mounted onto a substrate and then to store the difference data to a PC. As a result, you are able to know the inclination of a package.
- * You can inspect the soldered state of a package and separating them into OK and NG packages by graphically inspecting the following:
 - the height of the ball soldering
 - the interval between the balls
 - the shape of the balls
- * The camera automatically moves to the NG part when you click the NG part data for your visual confirmation.

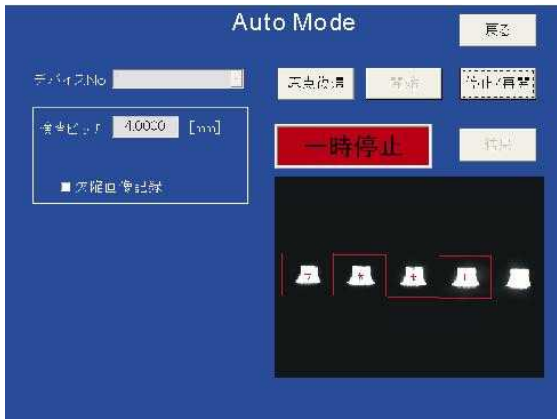


Operation Outline

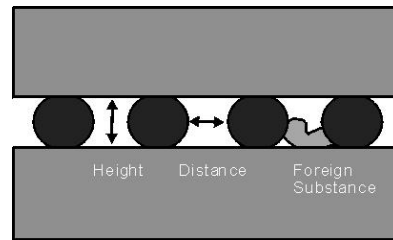
First set and register the camera position and the image processing parameters corresponding to the device. You can store up to 50 kinds of devices.



- * The camera position can be manually set by looking at the camera image. You must input the ball pitch, the number of balls, and the interval between the balls to be inspected.



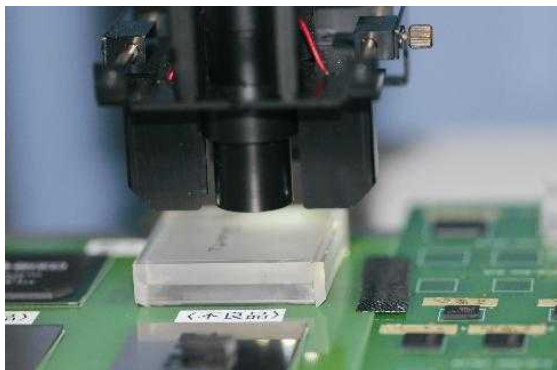
- * Since you can set multiple parts for inspection at once, you can save a lot of inspection time.
- * You can register the area enclosed by a red square as a template, and search for similar shapes to be measured.
- * The image and data can be stored. You can store the image and data as a microscope image and data by adjusting the lighting on the microscope.



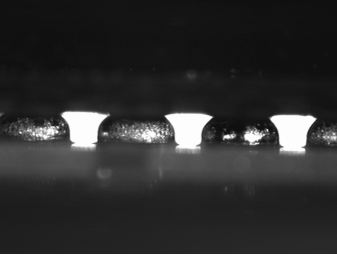

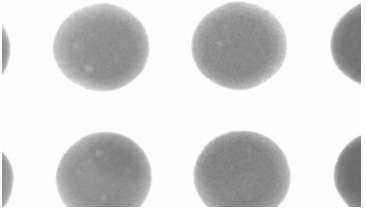
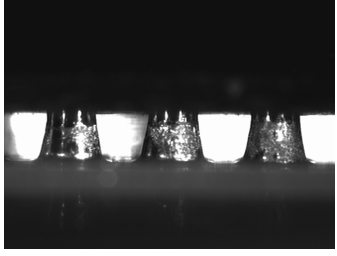
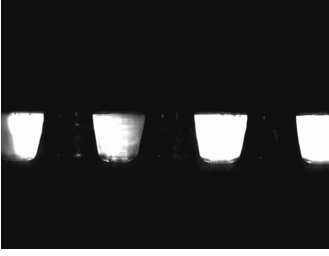
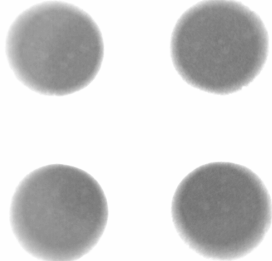
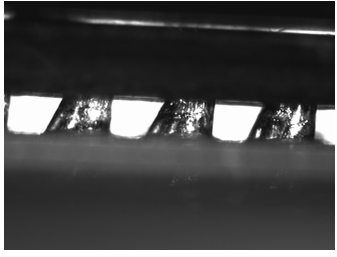

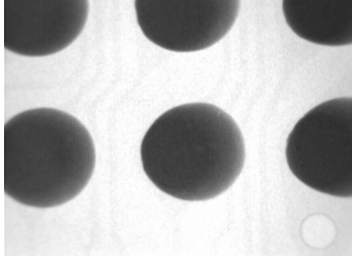
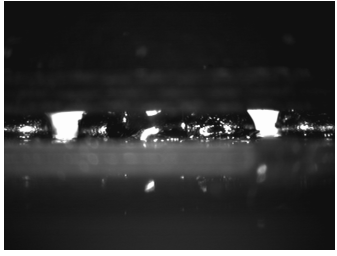

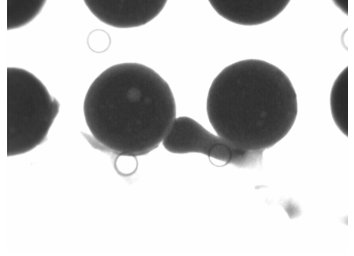
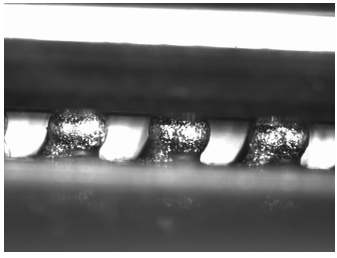

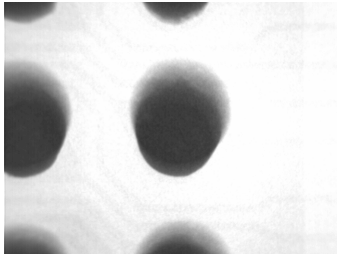
- * The parts outside the range on the Inspection Result List are displayed in red. You can inspect the image of the part by clicking the red part. You can also set the unit so that it automatically stores an image of a defective part.

No.	検査項目	検査結果	単位
1	1234	OK	mm
2	5678	NG	mm
3	9012	OK	mm
4	3456	NG	mm
5	7890	OK	mm
6	1234	NG	mm
7	5678	OK	mm
8	9012	NG	mm
9	3456	OK	mm
10	7890	NG	mm

- * Before you start the measurement of the BGA package, set the special prism on the microscope. The maximum width of the prism is about 45 mm and the minimum width is about 5mm. You can use three types of prisms depending on the thickness of the BGA package. The thinnest prism can be installed to a BGA package with only a space of 0.5 mm.

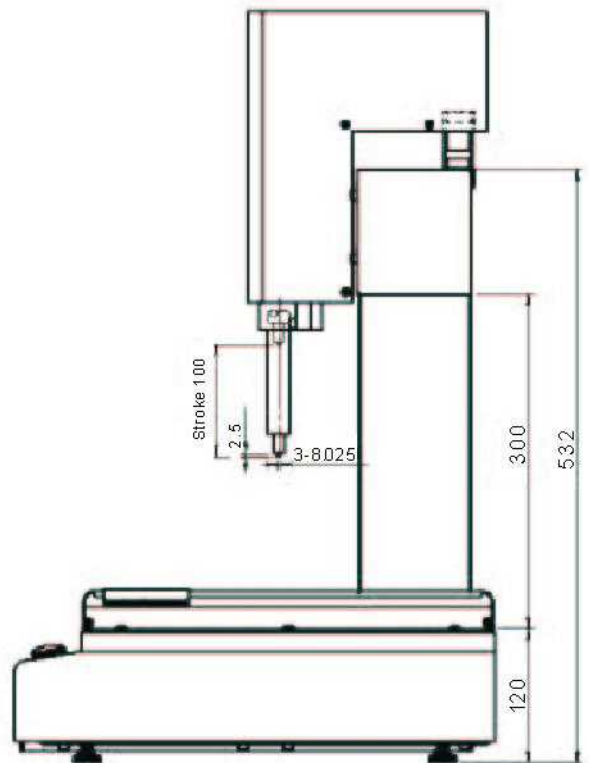
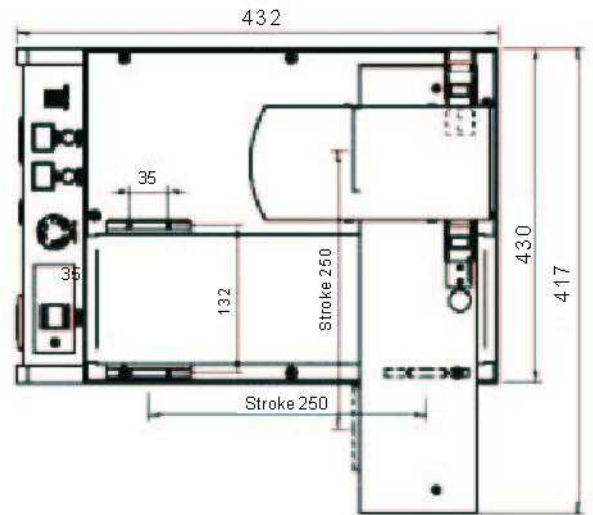


Comparison with the X-Ray

MS5000 With Camera Lighting	MS5000 Without Camera Lighting	2D X-Ray
 <p data-bbox="236 465 376 495">Normal ball</p>		
 <p data-bbox="108 786 504 815">Abnormal ball – weak soldering</p>		 <p data-bbox="1090 786 1485 846">Difficult to differentiate between normal and abnormal ball</p>
 <p data-bbox="161 1137 448 1167">A problem in alignment</p>	 <p data-bbox="584 1137 1010 1198">The abnormally standing balls are easily recognizable</p>	 <p data-bbox="1090 1137 1485 1198">The light and dark shadings are slightly shifted</p>
 <p data-bbox="209 1489 400 1518">A partial bridge</p>		
 <p data-bbox="180 1809 435 1839">Defective alignment</p>		
<p data-bbox="73 1890 536 2078"> Height data: Noticeable Observation time: Short Void: Unnoticeable Crack: Difficult to notice Soldering surface: Noticeable </p>	<p data-bbox="738 1890 906 2078"> Noticeable Short Unnoticeable Unnoticeable </p>	<p data-bbox="1246 1890 1453 2078"> Unnoticeable Short Difficult to notice Unnoticeable Unnoticeable </p>

Specifications

Model	MS5000 ASS	MS5000 ASM
Main body specifications:		
Range of motion	250 x 250mm	400 x 400mm
Maximum speed	200mm/sec	200mm/sec
Optical specifications:		
Lighting	LED	LED
Camera	CCD 640 x 480	CCD 640 x 480
Telecentric Lens Magnification	x 1.5	x 1.5
Range of view	3.2 x 4.2mm	3.2 x 4.2mm
Measurable package size	5 - 45mm corner	5 - 45mm corner
Minimum measurable ball diameter	About 70 microns	About 70 microns
Minimum prism insertion space	0.5 mm (balls less than 0.3 mm)	0.5 mm (balls less than 0.3 mm)
PC specifications:		
OS	Windows XP	Windows XP
CPU	Pentium 1.8GHz	Pentium 1.8GHz
System memory	1GB	1GB
Control specifications:		
Drive system	Pulse motor	Pulse motor
Operation method	PTP.CP	PTP.CP
Number of control axes	4 Simultaneous axis	4 Simultaneous axis
Control speed setting	1 - 1000mm/sec	1 - 1000mm/sec



We will accept your request for change of specification (in-line type etc.).



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