

Video Microscope for BGA and QFP Visual Inspection

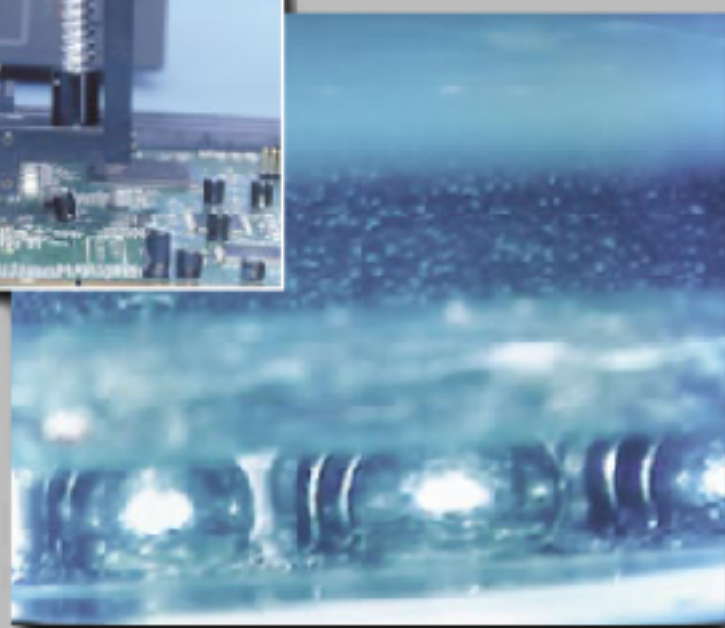
micro

Micro Square

MS-3000 SYSTEM



The totally new system for visual inspection of soldering parts between implementation board and BGAs. When used with conventional X-ray inspection devices, more reliable inspection and analysis can be achieved.



Certified as Utility Model and
Patent pending

BGAs have been significantly highlighted as a new form of IC packages these days. It is considered that soldering failures on BGAs are less than those on QFPs, but not absolutely "zero." Therefore, for implementing manufacturers intended to employ BGAs, visual inspection equipment for connecting failures is becoming more necessary tool.

As it has been well known that the shapes of soldering parts have been related to reliability, they have been conventionally inspected using X-ray.

Now, MS-3000 System and MS-1000 System which have also economical advantages are introduced in the market. They are innovative BGA Video Microscopes which enable new inspection ways when used with conventional X-ray methods.

MS-3000 SYSTEM

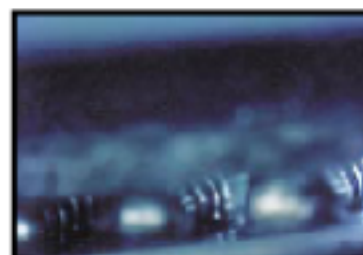
The visual inspection equipment which enables inspection of solder ball shapes in depth. Also, remained flux, voids, bridges, or other failures can be confirmed. Especially by observing silhouettes of connected parts, the reliabilities of soldered parts can be confirmed. Also, if abnormalities are found by observation using X-ray, the actual situations can be visually confirmed.



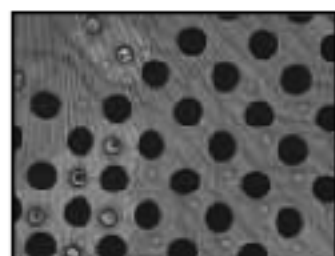
OK (Example) N



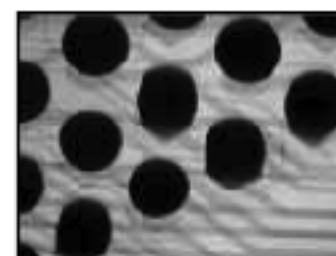
G (Example)



(X-ray photo, courtesy of UNIHIGHT SYSTEM Inc. EV-160m1)



It has been difficult to confirm soldering conditions only with image from the top.



X-ray image viewed from the direct on with view angle of 50 degrees. It can be confirmed that the part slightly square in the lower part is securely soldered.



Soldering at lower part is insufficient. The ball is not properly connected.



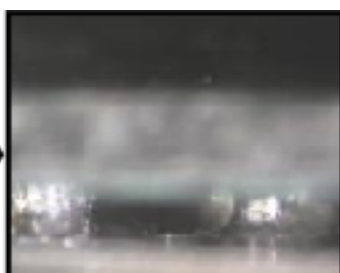
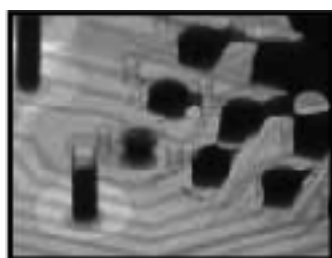
Fully floated.



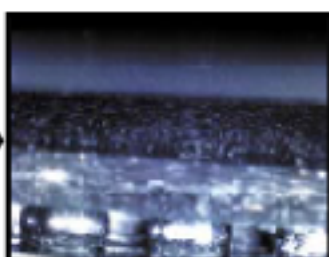
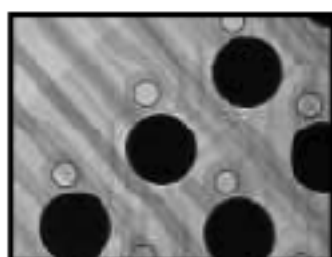
Flux and slightly abnormal ball shape.



It can be seen that soldering shapes in first and second columns are different from those of the third and following columns.



Insufficiently soldered.
This can be easily seen using 3-D X-ray. However, when X-ray is projected from the top, sometimes it may be difficult to see actual situations.

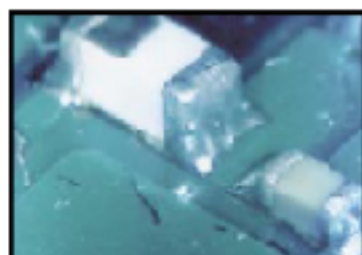
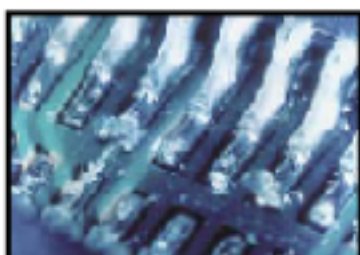


It can be seen that crack occurred in the lower part of soldering. The crack might occur with some forces after soldering.

Observation on packages other than BGA



Soldered connection in the lower part of IC socket.



Even if there is no space adjacent to the BGA, it can be observed only with space of approximately 1 mm.



With the prism removed, soldered connection of QFP is observed.

< Configuration >

MS-3000 System A-Type

Consisting of:

MS-3000 L Probe	1
MS-3000 H Probe	1
Halogen Light Source	2
MS-3000 Back-light LG	1
MS-3000 Back-light Arms	1
Stand DS-KYS	1
AC Adapter	1
RCA Cable	1
Camera Cable	1

MS-3000 System B-Type

Consisting of:

MS-3000 L Probe	1
Halogen Light Source	2
MS-3000 Back-light LG	1
MS-3000 Back-light Arm	1
Stand DS-KYS	1
AC Adapter	1
RCA Cable	1
Camera Cable	1



MS-3000 L Probe : Suited for wide area observation

MS-3000 H Probe : Suited for detail observation

MS-1000

Visual inspection equipment by which BGA soldered connection in the first column can be observed. Especially joint part, which is difficult to see only with X-ray from the top, can be observed in detail. Also by replacing the prism on the tip with the straight prism in the standard set, parts required to see, such as soldered connections of QFPs and soldering of small parts can be easily observed from the view angle of approximately 45 degrees. The equipment is very useful as it is portable.

< Configuration >

MS-1000

Consisting of:

MS-1000	Probe	1
AC	Adapter	1
RCA	Cable	1
Straight prism		1



Bad ball shape



Normal



BGA side



* The specification and design described in this catalog are subject to be changed without notice.

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