

# MX-BGAZ II

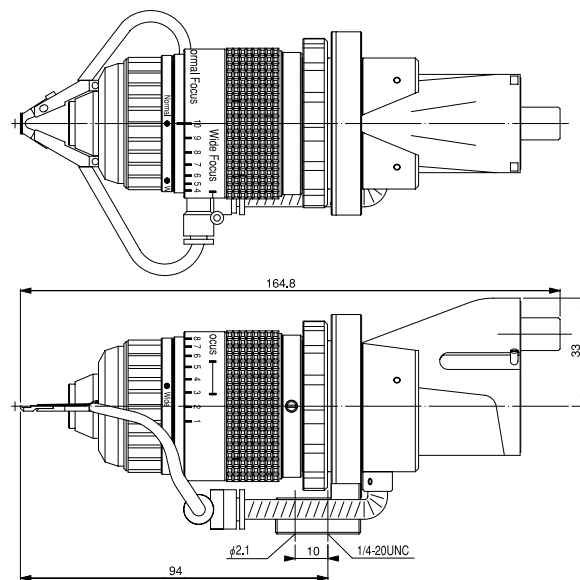
BGA Lens [100-180x]



Prism chip structure <b>Soft spring structure for protecting substrates</b>	Prism adaptation width <b>0.9mm</b>	Observation angle <b>90 degrees or higher</b>	Illumination methods <b>Optical multi illumination</b>	magnification <b>100~180 power ※1</b>	Operational distance <b>0.9~8.0mm ※2</b>	Weight <b>695g</b>
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※1: Mode Switch Ring set to 'Normal' magnification.  
※2: Distance from the Prism tip to the BGA ball.

Measurement diagram



OPTION



AD-BGABL Backlight  
Weight 27g (Excluding AC Adapter)

AD-BGAPC2 Prism Tip  
5 pieces per Pack

**HiROX**  
<http://www.hirox.com>

BGA LENS CATALOGUE **C937**

## BGA Mounting Technology has been changed by Accurate Exterior Observation

The 「MX-BGAZ II」 is the new standard for BGA inspection.



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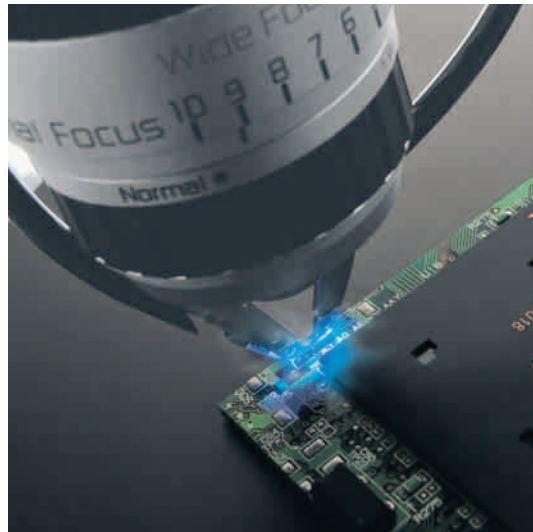
Contact

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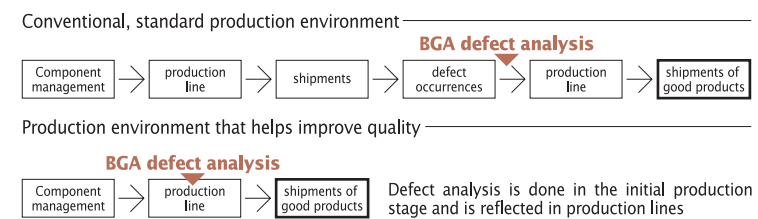
# BGA observation is changing from analysis of discovered defects, to Analysis for Preventing Defects.

## MX-BGAZ II



### Aiming to improve the quality of BGAs

Defect analysis in BGA mounting is time consuming and costly. It is prone to losses and has been one of the factors for increasing manufacturing costs. HIROX focused on this problem, did strenuous research, and as a result has succeeded in finding a solution to this problem. In BGA mounting, accidental incidents are likely to happen. Thus when a production line that reflects appropriate temperature profiles is secured, it helps substantially reduce the rate of defects. Appropriate temperature profiles can be established through the analysis of BGAs. Accurate exterior observation of the BGA removes defects at the source. We pursue not only defect analysis, but also tools that help prevent defects.



Based on theories of mounting technology for technological improvement, the all new 「MX-BGAZ II」 has been created.

### Easy and Accurate exterior observation

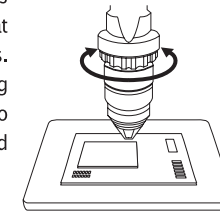
Exterior observation allows for defect analysis of BGA mounting substrates and the creation of environments for preventing defects. It concentrates HIROX's unique knowledge and technologies for observing BGAs from various angles in an easy manner. The use of this lens allows anybody to become a high-level engineer and to make precise exterior observations.

#### Progress 1 Inspect the shape of all the components

The mode-switch ring changes from normal to wide mode. Not only can you achieve detailed observation of the BGA, but also confirm the shape of all surrounding components.

#### Progress 2 Rotate the lens, not the sample

The 270° rotatable lens helps view mounting substrates that are closely packed with parts. Even a large BGA mounting substrate that is difficult to move can be easily observed by rotating the lens.



#### Progress 3 Easy Operation

3 rings provide image focus, top and bottom inspection, and wide or normal view.

#### Optical rotary Ring

Rotating the ring changes observation angles. Without moving the lens and substrates, it enables detailed analysis of upper and lower joint parts of the BGA ball.



Points of contact for BGA upper parts. Points of contact for BGA lower parts.

#### Focus Ring

Rotating the ring facilitates focusing on the BGA.

#### Mode Switch Ring

Rotating the ring switches the observation range without changing the distance from the lens to BGA and allows confirmation of parts warpage and uplift on mounting substrates.

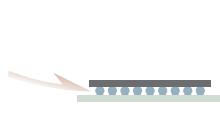
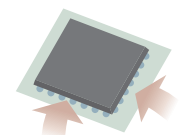


#### Illumination-attached prism tip

A 45° prism mirror helps view the BGA ball from the side. This prism tip serves the role of a light guide, and enables bright, high-resolution observation even on a concentrated substrate.

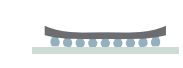
### Mode Switch Potential

BGA mounting substrate defects come from either inappropriate temperature profiles, or faulty mounting parts. The MX-BGAZ II mode switch ring enables wide observations of not only BGAs, but surrounding conditions as well. Temperature profiles can be determined as inappropriate by observing the balls in the front row, which are most affected by the heat. Some common abnormalities include altered ball shape, luster, warpage, or uplift.



When a lower part heater is used in mounting, observation of the front row helps predict the cause of the problem, because there is no temperature difference between the outside and the center.

#### Examples of inappropriate temperature profiles



Part warpage and uplift



BGA ball detachment



BGA ball extension, oxidation.

Furthermore, observation of the BGA exterior in detail helps specify various problems, such as overheating, oxidation, air foam formation, and their causes. The 「MX-BGAZ II」 allows inspection of the BGA ball's upper and lower joints by changing the observation angle through the optical rotary ring. This information is useful in reviewing the temperature profiles.

※ If mounting parts have problems, please use the 「MX series 5040RZ lens」 that is compatible with the rotary head adapter.

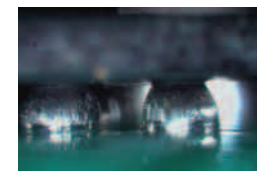
### Exterior analysis clearly identifies defects



Because preheating is too long, flux deteriorates and the ball is oxidized and does not melt.



Detachment caused by outer pressures, detachment from the land because of unfavorable junctions.



The heat quantity from the upper heater is large, parts are warped, balls are extended and the light halation is out of alignment, coming to the lower part of the ball.



Because preheating is too long, flux deteriorates and the ball and the solder are not joined into one.



When light halation is observed at the center of the ball, it indicates that heat balance is favorable and the ball is round-shaped. BGA mounting uses light halation as one standard of judgment.

