

The AL2100 – Quality performance in advanced wafer inspection and defect review



Process and yield engineers rely on a broad range of inspection techniques to track defects and maximize yields. The AL2100 wafer inspection station combines the core optical expertise of Olympus with superb mechanical and ergonomic design. The result is a fully integrated, cost effective tool capable of macro and micro wafer inspection and defect review.

Our core expertise is at the heart of every AL2100

Olympus is world renowned for superior optical design and manufacturing. The AL2100 integrates the MX80 inspection microscope, a classic of Olympus expertise in optical manufacturing. Its highly automated performance and ergonomic design allow the operator to work in complete comfort. Exclusive Universal Infinity System (UIS) infinity corrected optics provide superior resolution and contrast.

Available with a full range of options, the AL2100's capabilities can be readily enhanced to meet the diversified, ever-changing needs of the industry. Whether a simple bright field observation, an advanced Nomarski DIC image optimization and capture, or a white light confocal application, the AL2100 inspection station can adapt.

Macro Inspection—Olympus' unique solution for front and back surface inspection

Advances in wafer processing technology emphasize the need to inspect the backside of wafers (e.g., focus hot spots). The AL2100 uniquely offers a variety of options for inspecting both the front and back wafer surfaces in a single pass.

The macro inspection table is motorized and easily positioned through a wide range of tilt angles for both front and backside observation. A precise tilt angle can be maintained while the wafer rotates under the macro illumination. The operator can manually control the wafer tilt angle using a responsive joystick. These flexible capabilities along with a full complement of illumination sources and wavelengths will satisfy the most demanding macro inspection requirements.



The advanced level of automation on the AL2100 allows greater precision, higher throughput and superior reliability.

**Micro Inspection—
Identifying process defects**

Even the most advanced wafer fabs continue to rely on inspection stations to perform time sensitive operations such as After Develop Inspect (ADI), After Etch Inspect (AEI) and post-CMP inspections. The AL2100 incorporates the tradition of excellence found in every Olympus product into a fully integrated system built to meet and exceed these requirements. In addition to the automated transport and positioning of wafers for inspection, users can program specific macro and micro inspections for their products using a variety of observation and illumination methods. Inspection results can be logged and stored along with high resolution video images.

**Defect Review—
Observe and classify defects quickly and easily**

The review and classification of defects detected by automated wafer inspection systems is critical to the yield management process. The AL2100 allows the user to import defect maps from both patterned and unpatterned wafer inspection tools and observe defects under a wide range of magnifications and observation methods, including Bright Field, Dark Field, Nomarski DIC (Differential Interference Contrast), and Confocal. After the review process, defect files are updated with classification data and any stored images. The updated defect files are uploaded to the user's yield management system.

**AL2100
Specifications**

Wafer handling	<ul style="list-style-type: none"> ■ 200mm, 150mm ■ Two cassettes or two SMIF ports
Macro Inspection Unit	<ul style="list-style-type: none"> ■ Top surface, back surface edge inspection with tilt and rotate ■ Optional back surface center inspection with tilt ■ Motorized tilt, automatic or manual joystick operation ■ Rotation – CW/CCW or Stop with variable speed 3-30 sec/rev.
Macro Illumination	<ul style="list-style-type: none"> ■ 160W focused or diffused light illumination ■ Fiber illumination 100W, adjustable angle
Microscope	<ul style="list-style-type: none"> ■ Olympus MX80 with programmable, motorized stage ■ Tracking laser autofocus
Microscope Illumination	<ul style="list-style-type: none"> ■ 100W Halogen lamp with intensity control
Viewing Options	<ul style="list-style-type: none"> ■ Bright Field, Dark Field, Nomarski DIC*, Confocal*
TV Camera	<ul style="list-style-type: none"> ■ Color CCD-640 x 480 pixels (NTSC)
Computer	<ul style="list-style-type: none"> ■ Windows® XP® operating system ■ System controlled with user-friendly GUI
Features	<ul style="list-style-type: none"> ■ Class 1 Mini-environment with full area coverage* ■ Vibration isolation table for stable high resolution imaging

* Optional equipment

