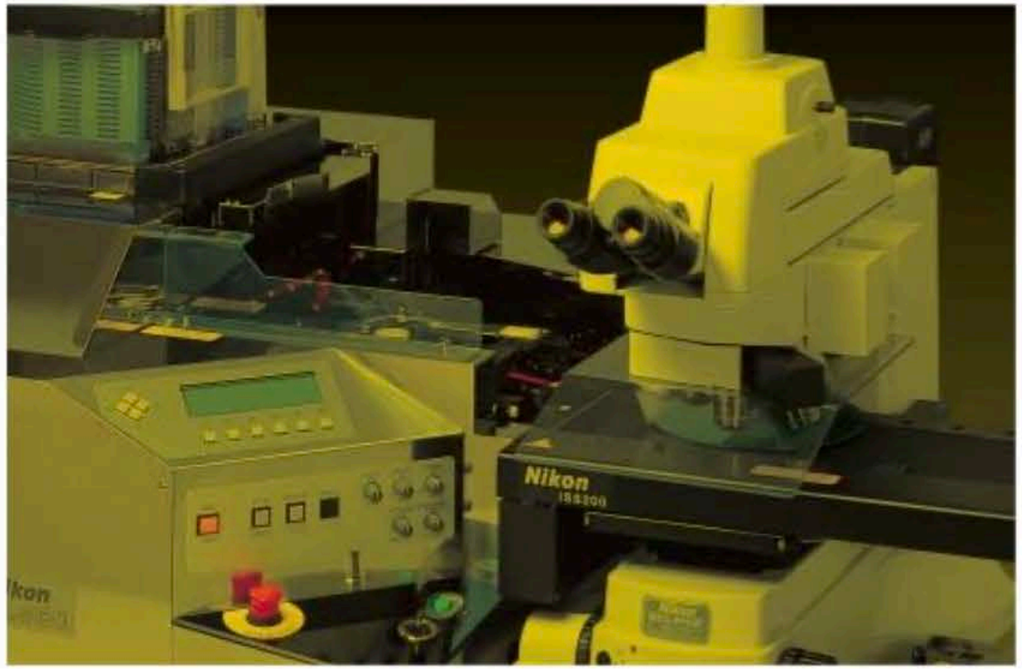
The perfect answer to macro inspection tasks

IC Inspection Wafer Loaders

NWL-860 Series

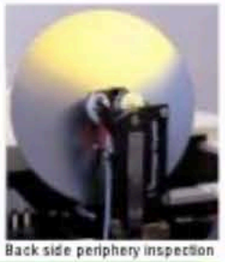
The NWL-860 series provides a full range of macro inspection capabilities—one of the features considered most essential for inspecting semiconductor patterns with progressively higher steps and ever-increasing layers.
A single cassette wafer loader capable of handling 8- and 6-inch (200 and 150 mm) wafers, this series of wafer loaders not only comes standard with pattern side macro inspection capability, but also with the ability to perform back side periphery and center macro inspections as well.
The NWL-860TMB SP comes in a stainless-steel body and generates no static electricity, preventing particulate from attaching to the wafers. The NWL-860TMB INX comes with an SMIF elevator and both models feature a stop switch for greater safeguards against abnormalities. MB-type models are also available exclusively for macro inspections.

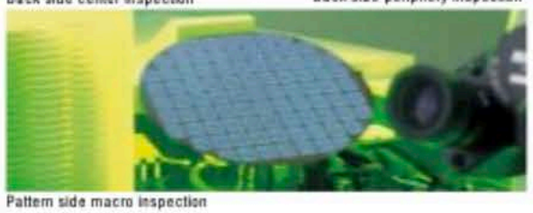


Back side macro inspection

Besides pattern side macro inspection, the NWL-860 series can perform back side periphery and center macro inspections. Macro inspection parameters, such as wafer rotation speed and tilt angle, can be set automatically or manually. Use the macro setting knobs to preset initial settings and make later adjustments using the joystick. (Joystick adjustments not possible during back side center macro inspections)


Back side center inspection


Back side periphery inspection


Pattern side macro inspection

Non-contact pre-alignment function

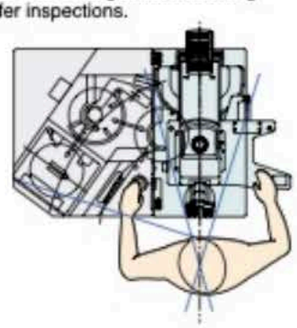
Prevention of wafer contamination is a vital issue when inspecting semiconductors. To avoid any chance of contamination, the NWL-860 series employs non-contact pre-alignment using photoelectric sensors to center wafers, avoiding all contact during orientation flat/notch operations. Furthermore, the whole system is configured, so that the entire inspection process can be performed without disturbing the downflow air stream in the cleanroom.

High reliability

Should an error occur, an error message appears on the LCD panel with a wafer recovery feature. Even when the power is turned OFF, the vacuum chuck stays ON, and the wafer is automatically returned to the cassette when the power is switched ON again. For even greater safety, the SP and INX types both feature an emergency button.

Ergonomic design

To assure operation in a natural posture, ergonomics surround every aspect of this system's design. Operation keys and knobs are located at the front and close to the operator, so that operation requires a minimum movement of the hand or eye. The wafer cassette is set at the front and 35° to the left of the operator, enhancing cassette setting and streamlining visual wafer inspections.



Simple, easy operation

The NWL-860 series uses a dialog-type operating system with an LCD panel, in which display information is logically classified, allowing settings for each step to be made easily on a single screen. Sophisticated functions such as file management for cassettes and wafer samples further enhance operational ease. A dedicated input keypad for setting inspection processes and programming wafers to be checked is also available as an option.

High throughput

Not only is the speed of the elevator surprisingly fast, but the use of a non-contact centering mechanism makes it possible to perform alignment operations quickly and accurately. A multi-arm system also allows loading and unloading of wafers with the utmost precision, increasing the overall efficiency of transfer and wafer exchange operations. This dramatically decreases cycle times, providing levels of throughput never seen before in any other system.

Communication function (option)

A data communication function conforming to SEMI (SECS) standards can be added optionally, enabling transfer of inspection data via the RS-232C interface or by remote control. This proves handy when expanding the system or incorporating it into a total network.

NWL-860TMB

Macro inspections of 8- to 6-inch wafers



NWL-860TMB SP

Dust-free, stainless-steel body



NWL-860TMB INX

SMIF elevator model

