

Automated Wafer Laminating System



Challenge

A semiconductor manufacturer needed an automated system that combines heat and pressure to process six-inch wafers under a proprietary process.

Solution

The entirely automated process begins whenever the operator loads a cassette or wafer at either end of the machine. Wafers enter the system via four dedicated cassette stations, with an additional four stations configurable to accept either cassettes or single wafers.



Two OCR-equipped flat finders installed at opposite ends of the machine establish wafer identification to validate the wafer for processing. After wafer identification, a track-mounted robot running the length of the machine with access to each of the ten high-pressure bonding presses automatically transfers the first wafer to the first available press running the recipe associated with the wafer identification. The robot will repeat the process until all presses are occupied. Whenever an individual press opens to release a completed wafer, the robot returns to transfer the wafer to its original cassette.

Operators remove and replace wafer cassettes, and monitor any operating errors generated during the process.

Result

The automated system produces **33,400 completed assemblies per month**, at a rate of **9 seconds per lamination** using six key subsystems, including a label applicator, laminating nest, laminating roller, input & output cassettes, pick & place, and reject handling.

About DWFritz Automation

Established in 1973, DWFritz Automation provides world-class build-to-print manufacturing capabilities to clients, in addition to designing, building, and supporting engineered-to-order automation systems and high-speed, non-contact metrology products.

