



SEMICONDUCTOR INDUSTRY

WAFER PROBE AUTOMATION PLATFORM

The Situation

A leading OEM of nanotechnology instrumentation needed to automate a critical step in the sample preparation process. The manufacturer had developed an innovative process in the lab and wanted to rapidly deploy the technology in a fully 300 mm compliant automation platform to meet the market window for 32 nm device development.

The Challenge

Although the technology had been demonstrated in the lab, key challenges needed to be overcome to move it into a production environment. The technology required ultra-precise wafer positioning, tight positional stability, and handling of micron sized samples. In addition, full compliance with 300 mm handling standards and SEMI requirements was necessary.

The Solution

Owens Design worked closely with the OEM to identify the key tradeoffs in commercializing their technology. Critical to a robust solution was the ability to precisely

locate the wafer and then provide an extremely stable platform from which the process could be initiated. The solution included vibration isolation, an extremely rigid bridge design, high performance 8 axis staging, clean air flow, EFEM integration, end effector design, frame, panels, and electrical packaging.

Owens Design provided the vision processing for wafer positioning

and the low level software libraries for machine control. The design fully met SEMI requirements for safety and EMI.

In addition, Owens Design supplied on-going manufacturing for the system including final test and drop shipment directly to the end customer.



Bridge Structure



300 mm Wafer Probe Automation Platform