SEMIPROBE®
Test ▪ Inspect ▪ Innovate

SUCCESSFUL APPLICATION: MEMS - 0921

Specific Requirements:

The customer required a fully automatic vacuum probing system for testing 150 mm and 200 mm MEMS wafers in a production environment. It had to operate at vacuum levels to 10^{-6} torr and be turn-key to include the prober, test instrumentation and the graphical user interface. The delivered system can operate in manual, semi-automatic, and fully automatic modes. The material handling and probe system is pumped down or returned to atmospheric temperature independently of each other to prevent interruptions in production.

SemiProbe Solution:

- PS4L FA-8 VP Fully automatic 200 mm probe system:
  - Programmable Wafer Stage – X, Y , Z, and theta with control electronics.
  - Customized mechanical clamping chuck to handle wafers (150 mm and 200 mm) mounted in carriers
  - Vacuum Chamber with large top view port, front-opening door, and several different types of flanges for connectors. Its top plate is removable for chamber access.
  - Material Handling Unit (MHU) with Load Lock – allows the MHU to pass wafers from the cassette chamber to the wafer prober and back while under vacuum
  - Cassette Station – holds customized cassette with 150 mm and 200 mm wafer carriers
  - PILOT Software Suite – Navigator, Wafer Map and Autoalign, MHU interface
  - Vibration isolation table
- Compound Microscope with 300 mm long working distance optics with motorized focus for high magnification and resolution
- CCTV System – includes color camera, 24” color monitor and accessories
- Test Instrumentation – various Keithley instruments
- High speed vacuum pumps for independent probe system and MHU chamber pump down
- EMO/Safety Interlocks – for MHU, probe system door and top
- Probe card holder – system uses a probe card holder and multiple cable harness kits to accommodate a family of probe cards with few to multiple probes
- Programmable manipulators – up to eight controlled via joystick or PC.