

HPD

4 K Cryogenic Wafer Prober

Fully automated cryogenic wafer prober at 4 K



Cryogen control

- Warm Water Bath
- Vacuum pump with flow controller and pressure regulator
- Recirculation with Binary Gas Analyzer and a 3-way directional valve

Vision system

- 50 mm XYZ Travel
- <3 um resolving power
- Pneumatic lift and rotatable beam for easy servicing

Probe station

- Gas spring assisted vacuum lid and latchable shield lids
- <4.5 K with 44 RF probes in contact
- +/- 112 mm XY, 0 – 13 mm Z, +/- 10° Theta motion

Rigid construction

- A solid granite base with a rigid motion structure
- Allows for rapid die to die movement and fast settling times
- Up to 25 mm/s travel speed

Magnetic cancellation

- Active cancellation with passive cryogenic shielding
- Quiescent magnetic field environment of <200 nT in the 4 K wafer space

Measurement and control electronics

- 26X system thermometers
- 10X 50 W heaters for rapid warmup in <8 hrs
- 3X magnetic probes with 0-200 uT range and 1 nT resolution

Wafer cassette loader

- Automated loading for 200 mm and 150 mm wafers
- Up to 25 wafer capacity
- <15 minute exchange time between wafers

Vacuum feedthroughs (not shown)

- Two large configurable vacuum flanges with additional smaller ports
- Large ports are 12 in x 18 in and 12 in x 26 in
- Base 56 RF (18 GHz) and 520 DC

Automated pumping system

- Load lock isolated pumping systems for wafer loading while system is at base
- Full system pump down in <40 minutes