

Alcatel® Model A601E

Manual Substrate Handling Components and Equipment Use Recommendations

Deep Reactive Ion Etching System

1. The Load Lock:

- Allows manual Atmospheric loading / unloading of a substrate.
- The Computer control system will automatically pump the Load Lock Chamber to vacuum for robotic transport to and from the Process Chamber.
- After recipe completion system will replace substrate in Load Lock and vent to atmosphere.
- Load Lock chamber should remain closed when not in use.

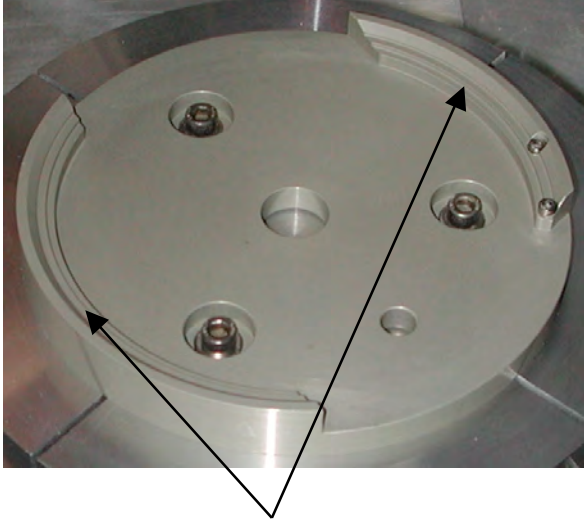


2. Load Lock open and ready for loading a substrate

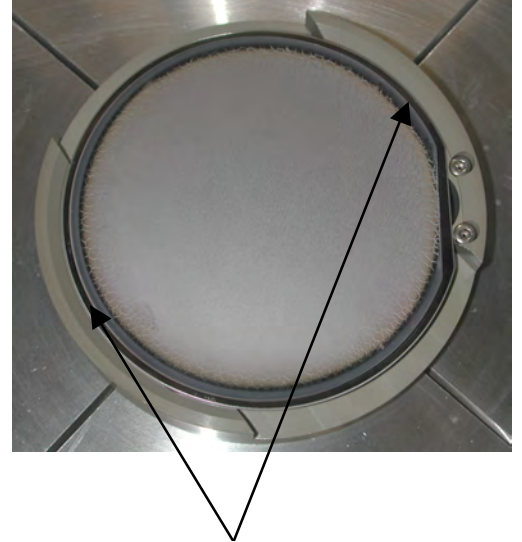


3. Substrate Positioning in Load Lock Substrate Holder

- Use only substrates with a single flat

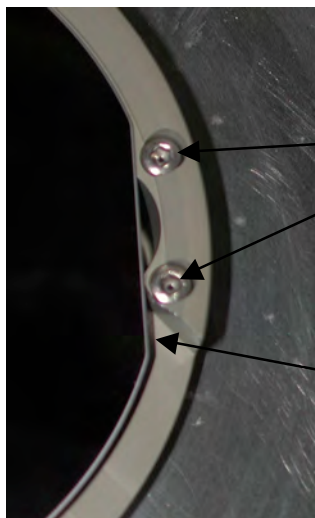


Substrate should rest flat on these two surfaces



Spacing between Substrate and Substrate Holder should be even on both sides

4. Substrate rotation close up

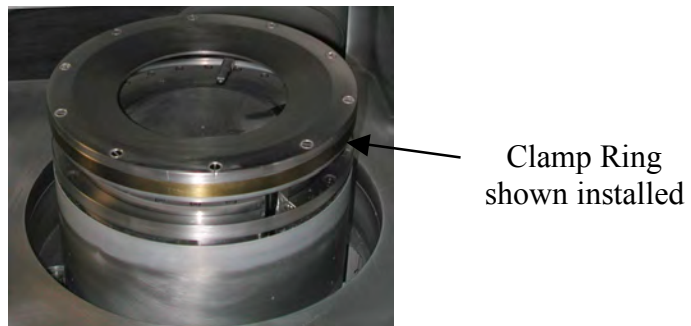
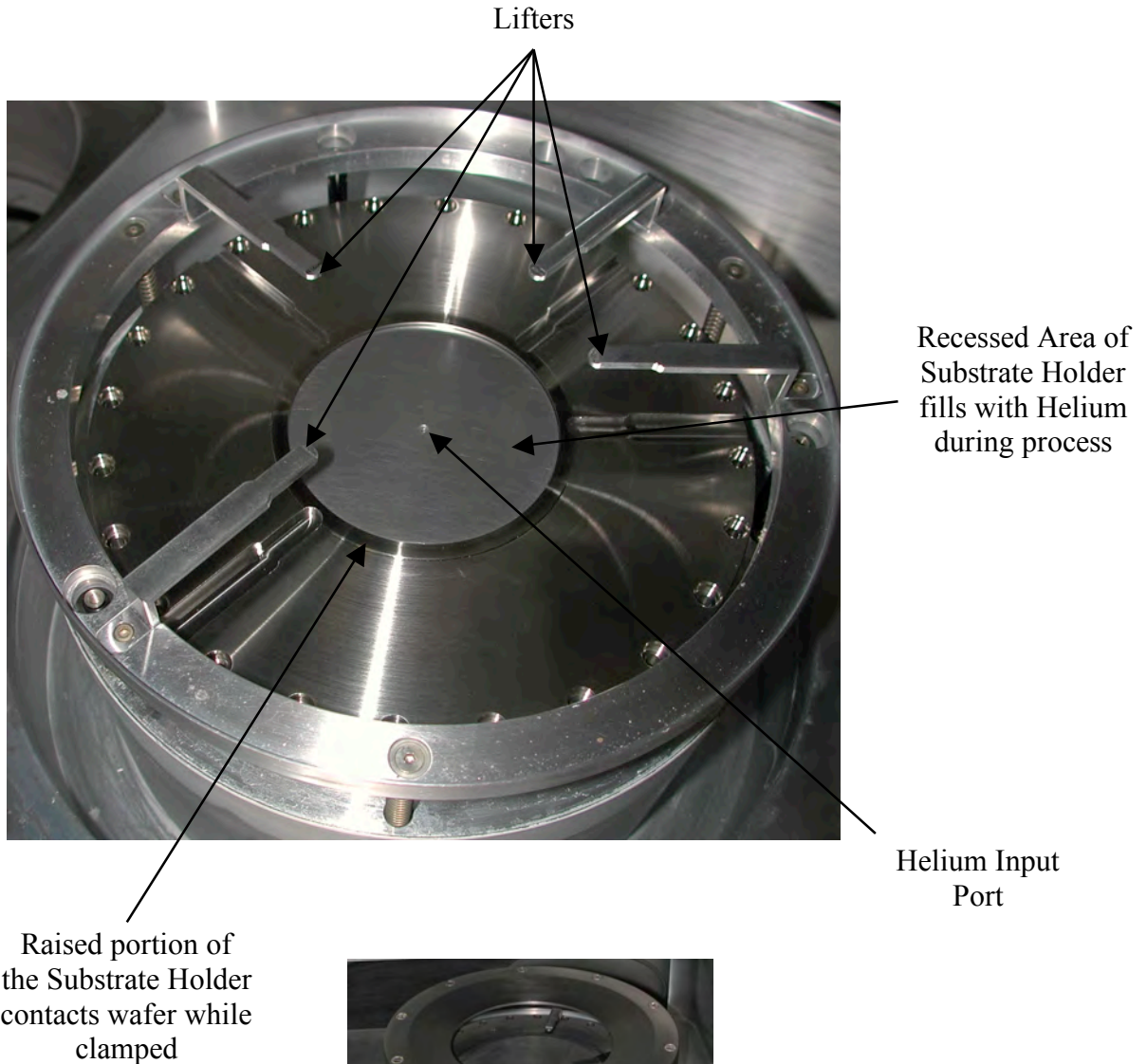


These two Screws can be used for rotation reference

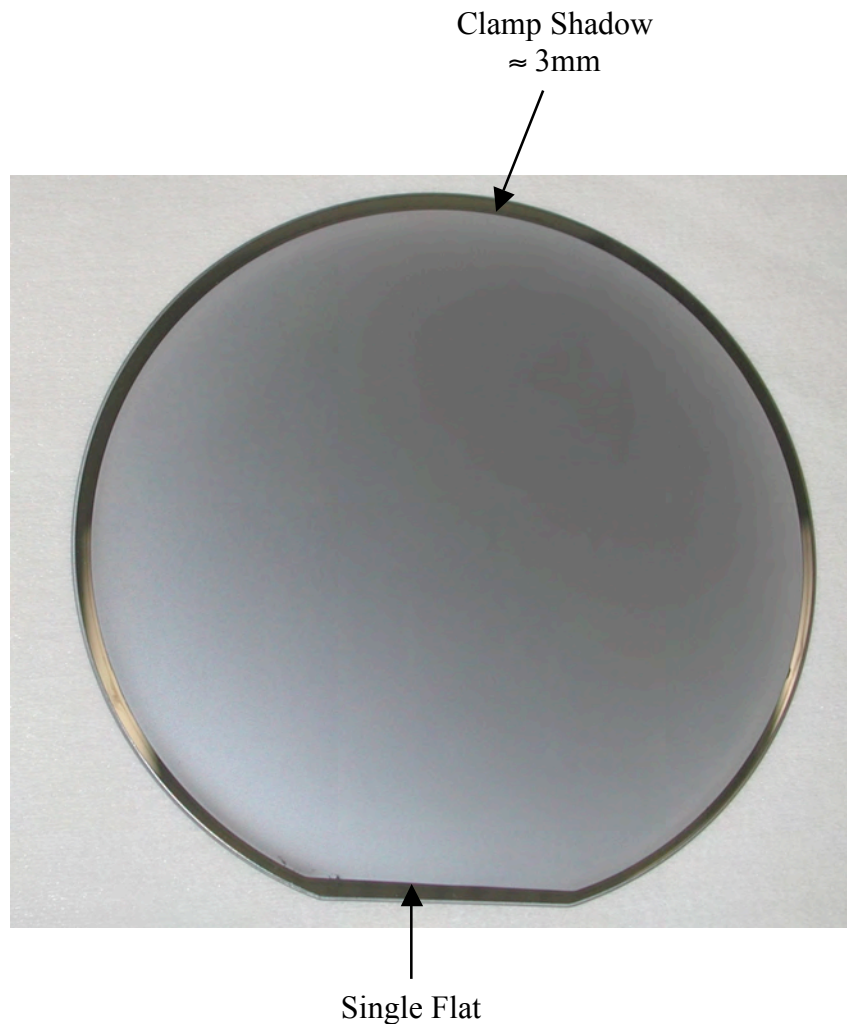
Substrate should be nearly parallel to screws

5. Process Chamber Substrate Holder Assembly

- Wafer lifters move up to unload or down to load Robot Arm when extended into Process Chamber
- When Robot Arm is retracted Lifters move Down to Load the Substrate Holder or Up to Unload after Process is complete
- Lifters lower to below the Substrate Holder top surface
- Each Lifter has a recessed area on the tip to improve placement accuracy



6. Substrate / Wafer considerations

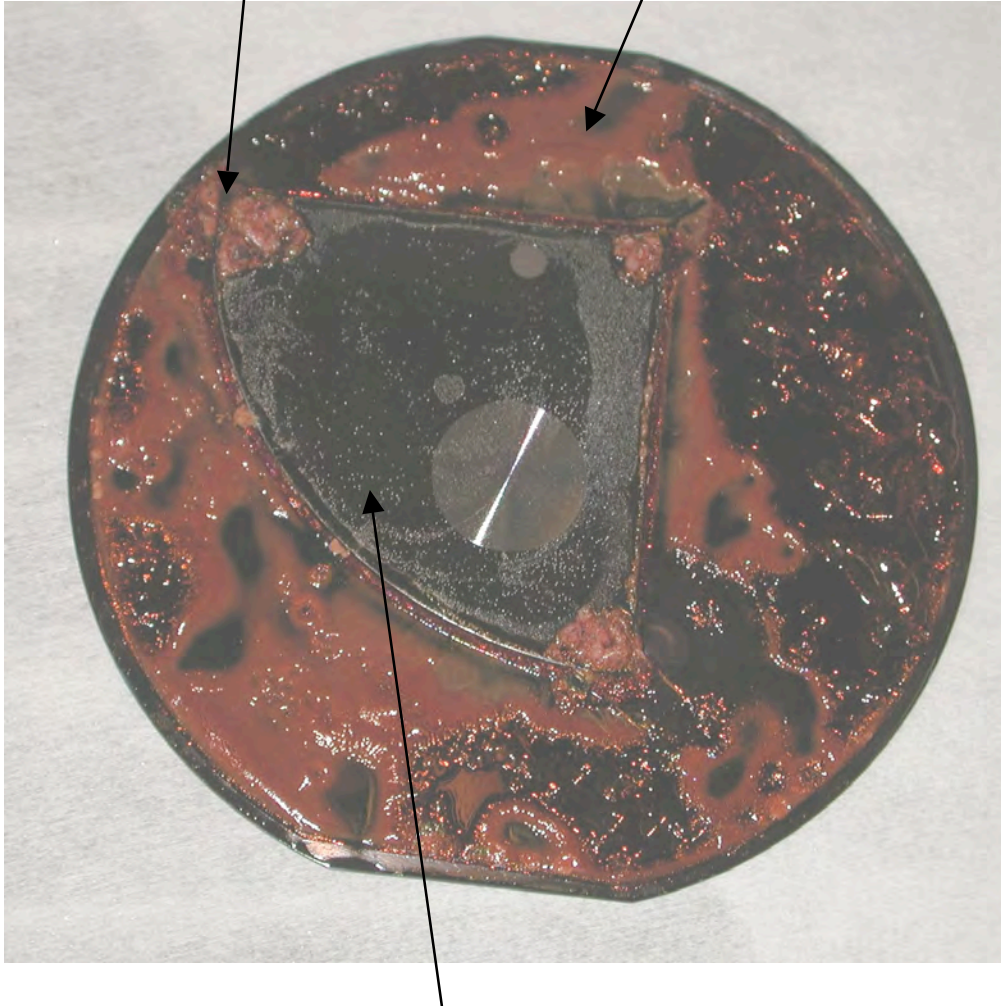


- Substrate backside must be clean and free from scratches.
 - Scratches or scribe marks near the outer edge can cause Helium leakage between back of substrate and raised portion of Substrate Holder.
 - Any sticky or uncured material on wafer backside can cause wafer placement errors and possible breakage or dropping during transfer. Any small pieces of hard material on the back of the substrate can cause breakage during clamping.
- Substrate must have a single flat to prevent Helium leaking past the clamp ring.
- Substrate must have a properly baked or cured coating on top surface. The clamp shadow is where the clamp ring contacts the substrate. Any soft or sticky materials can hold the wafer to the clamp ring until after the transfer arm has moved, causing wafer to drop and possibly break.

7. Wafer that dropped during transport

Piece is too Close to Edge
of Substrate / Wafer

Coating appears to not
be properly cured



Piece on the substrate / carrier should be centered to improve balance during handling. If goal was to keep the circular image near center then piece should be been trimmed down

- If piece had extended closer to the substrate edge the wafer would have likely broken when the clamp pressed down.