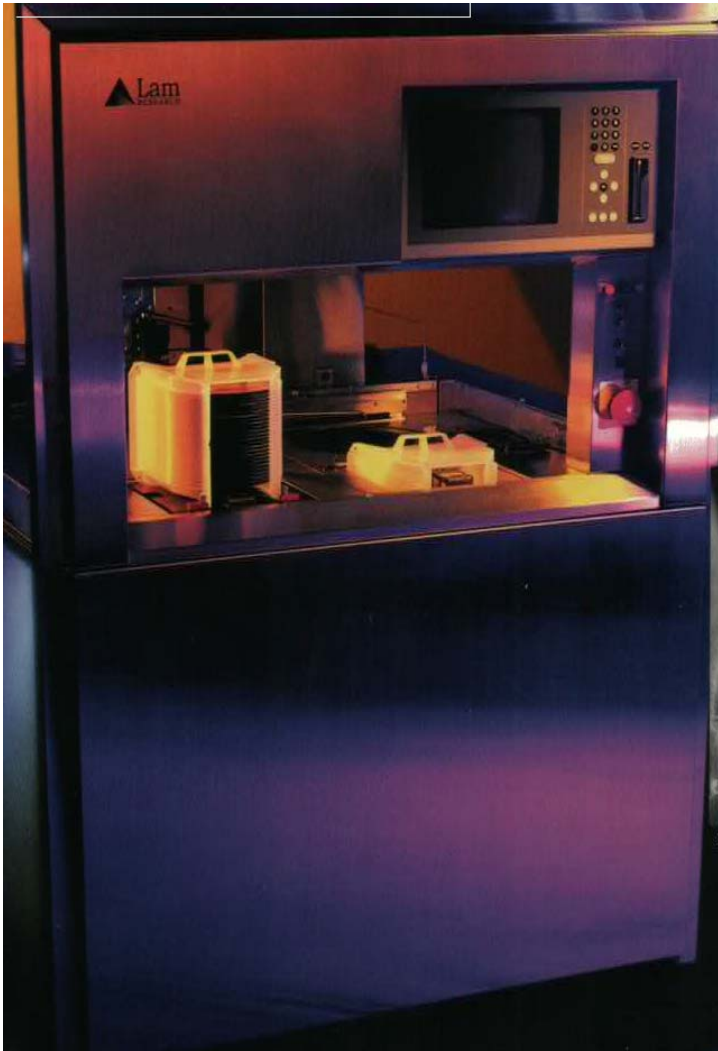


# Rainbow® 4600 Etch



The Rainbow® 4600 metal etch system has achieved customer recognition for its high reliability, excellent CD and profile control and excellent etch uniformity.

Corrosion prevention exceeding 24 hours is achieved through a passivation process that utilizes Lam's proprietary downstream quartz (DSQ) strip removes photoresist and chlorine trapped in the sidewall matrix. Subsequently, the atmospheric passivation module (APM) rinses the wafer with hot and cold DI water to remove residual chlorine adsorbed on the metal and oxide surfaces.

## Applications

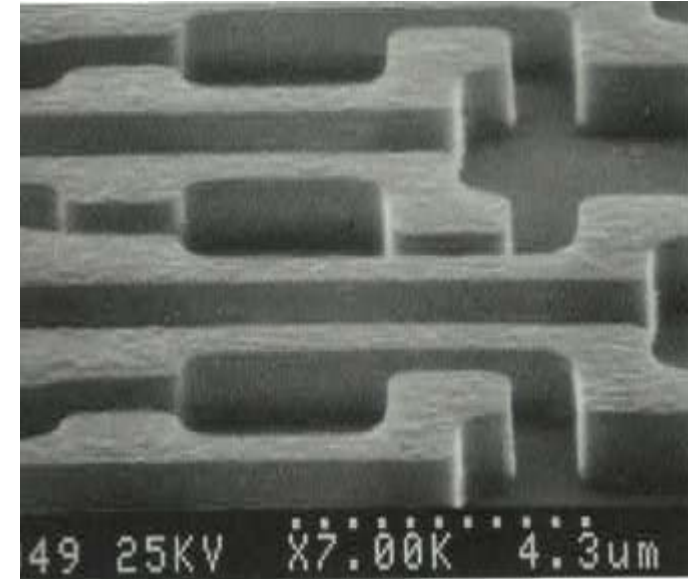
- ◆ Al/ Si alloy etch
- ◆ Al/Si/Cu alloys etch
- ◆ Ti N etch
- ◆ Ti W etch

## Typical Results

- ◆ Al etch rate >7000 Å/min
- ◆ Uniformity +/- 15% 3σ
- ◆ Al to oxide selectivity ≥ 5:1
- ◆ Al to resist selectivity ≥ 2:1
- ◆ CD change < 10 %
- ◆ Profile 80 -90 degrees.
- ◆ Particles <0.06/cm<sup>2</sup> at >0.3μm

## System Reliability

- ◆ Uptime ≥ 85%
- ◆ MTTC < 6 hours
- ◆ MTBF ≥ 125 hours
- ◆ MTTR ≤ 4 hours



## Feature

- ◆ High reliability design
- ◆ Carbon free chemistries
- ◆ Precise temperature control
- ◆ Low operating pressures
- ◆ DSQ resist removal
- ◆ On board APM module

## Benefits

Maximise MTBF and minimise MTTR.  
Minimise particle contamination  
Excellent profile control across wafer  
Excellent by-product removal from chemical reaction  
Removes corrosion causing chlorides  
Enhanced corrosion resistance

