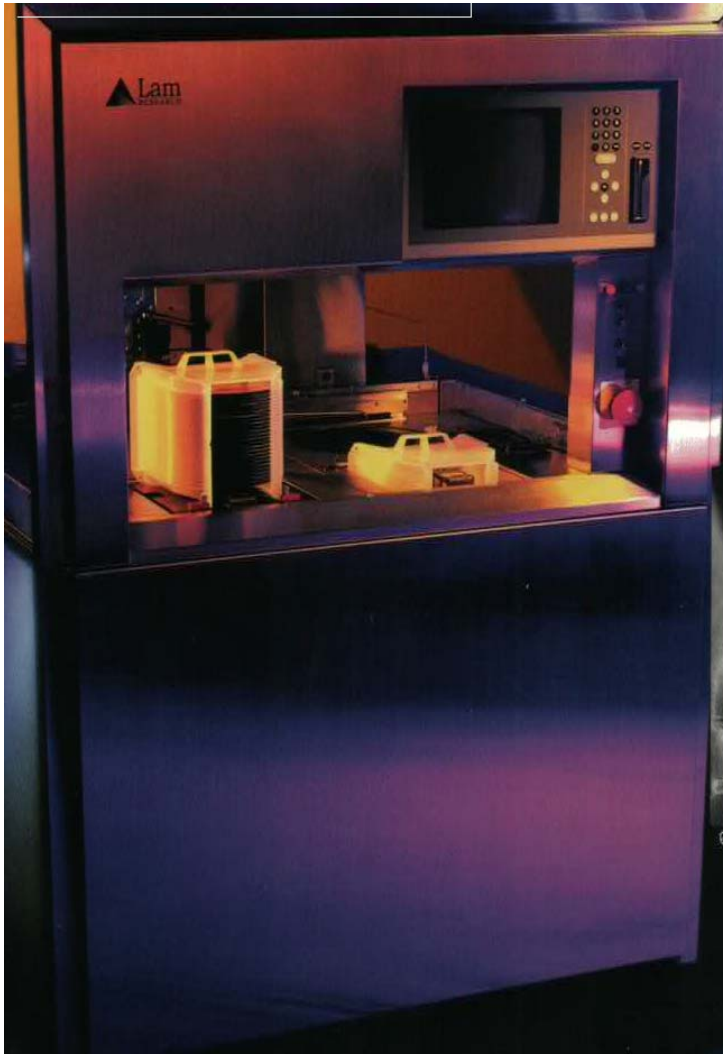
TCP® 9400 Etch



System Reliability

- **Uptime ≥ 88%**
- MTTC 12 hours
- MTBF ≥ 200hours
- MTBR ≤ 4 hours

Typical Results

- Poly ME Etch rate ≥ 2000A/min
- Uniformity +/- 10% 3σ
- Selectivity poly to oxide (ME) ≥12:1
- Selectivity poly to oxide (OE) ≥125: 1
- Profile control 88- 90 degrees
- CD Bias ≤ ± 0.03 µm
- Particles <0.06/cm2 at >0.2µm size

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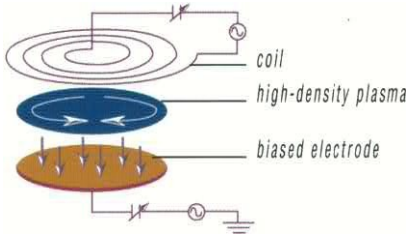
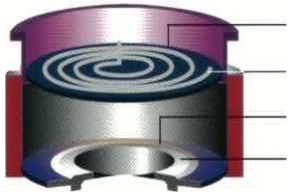
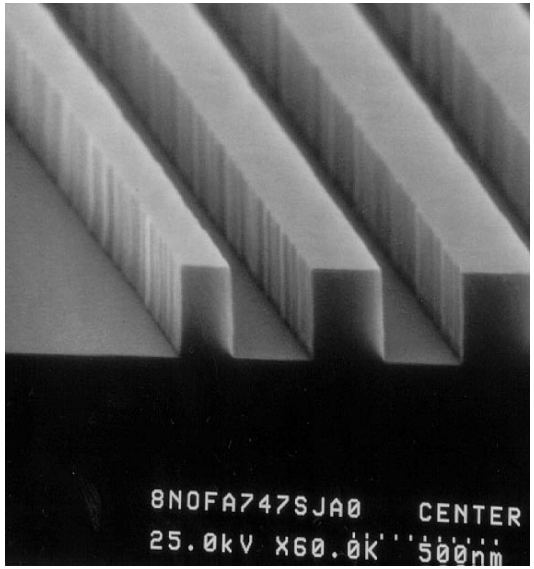
The TCP® 9400 system uses Lam's patented TCP® technology and offers several key benefits for polysilicon etch.

The TCP® technology creates an inductively coupled, high-density plasma directly above the wafer while operating at low pressure.

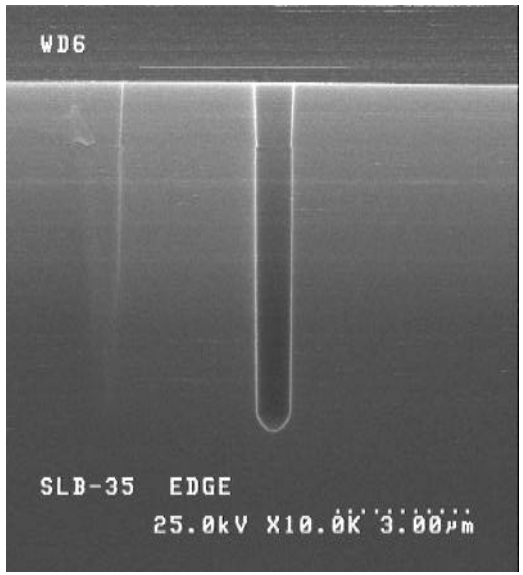
Independent control of ion generation and ion energy allow etch processes to be optimized, providing excellent etch rates, profile control, and critical dimensions while ensuring minimal damage.







TCP® 9400 etch applications include :
PR mask over doped poly for ≥0.35 µm gate
UV PR and organic ARC mask over doped poly for ≥0.25 µm gate
PR mask over undoped poly for ≥0.35 µm gate
DUV PR and organic ARC mask over undoped poly for ≥0.25 µm gate
PR mask over polycide (WSi_x/poly) for ≥0.35 µm gate
DUV PR and organic ARC mask over polycide (WSi_x/poly) for ≥0.25 µm gate
Shallow trench isolation (STI) ≥0.25 µm
Hardmask gate (pre etched hardmask or in situ etch hard mask)
PR mask over nitride for ≥0.35 µm LOCOS



Feature	Benefit
Low pressure operation (1-20mtorr)	Precise CD control with minimal profile micro-loading
High density plasma	High etch rates
Independent control of ion density And Ion energy	Wide process window, minimal micro-loading and damage
Patented planar coil	Uniform etch rate and Ion current density
Simple ,efficient design	Ease of maintenance, low cost of ownership
Rainbow platform	Production proven ,high reliability

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