GaSonics
AE 2001 Isotropic Etch System
Single Wafer

The AE-2001 is a single wafer down-stream isotropic etch system, designed to etch thin films such as polysilicon, silicon nitride and CVD oxides.

Utilizing the proven Aura downstream microwave source and a dedicated reactor chamber, the AE-2001 is the unparalleled tool of choice for multiple applications and high capital productivity.

Features

- No RF damage (≤0.1 volt CV shift)
- High throughput
- Front and backside etching
- Excellent etch rates and uniformities
- 100mm-150mm wafer capability
- (ceramic) Plasma tube
- Fluorine compatible chamber
- Well-characterized process
- SECS II interface
- Multiple step process capability

SPEC is the licensed manufacturer of GaSonics products by Novellus

Isotropic Process Applications

- Contact slope etch
- Via etch
- Nitride pattern removal (LOCOS, PBLOCOS)
- Passivation
- RIE damage removal
- Sodium removal
- Polymer/sidewall cleaning
- Low temperature photoresist ashing

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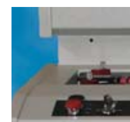
Product Specifications

GaSonics
AE 2001 Isotropic Etch System
75-150 Millimeter

Performance Specifications

Etch rates and throughputs	S_{13} N_4	>1500 Å
	BPSG	>4000 Å
	TEOS	>2000 Å
	LTO	>2000 Å
Etch Bias (CD Control)		<0.05 µm
Selectivity to photoresist		>20:1
Uniformity (within wafer)		
	100mm	<±3% (5% 3 sigma)
	150mm	<±3% (8% 3 sigma)
Reproducibility (w-t-w)		10% 3 sigma
Micro/macro loading effects		None
Isotropy (L:V etch rate)		
	BPSG	0.9-1.1
	TEOS	1.2-1.6
	LTO	1.2- 1.6
Particle Contamination		≤0.15/cm2@0.3 µm
		≤0.05/cm2@0.3 µm
max-min/2 x average		

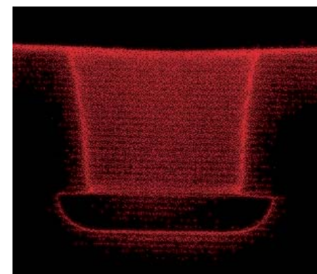


Reliability

Availability	>95% uptime
MTBF	>200 hours

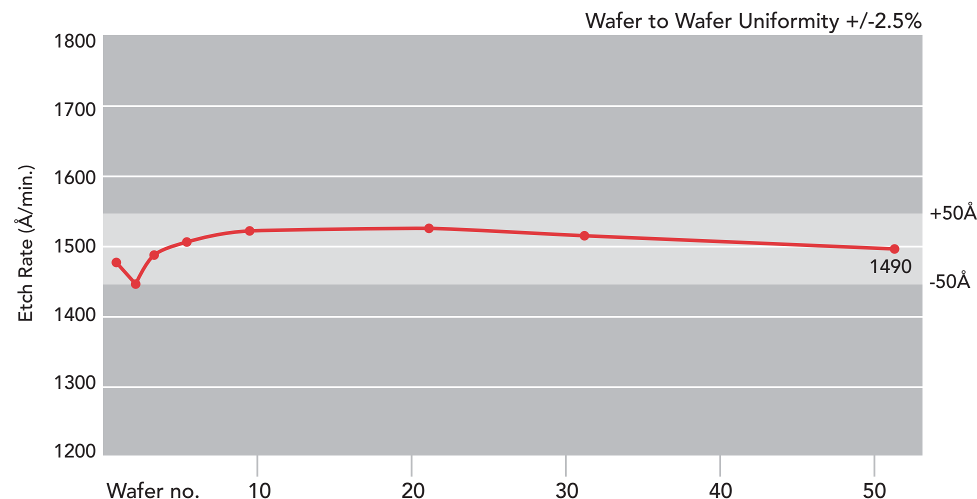
General Information

Vacuum (pumps)	1.65 cfm
Exhaust	>250 cfm
Process Gases	4 MFC's
Electrical Requirements	208V, 3 phase, 60 Hz
	20A/phase, U.S. (50 Hz Int.)
Weight	350 lbs., 159 Kilograms
Footprint	32" x 37" x 55"



This SEM shows a timed, isotropic etch into BPSG, resist left on.

Etch Rate Repeatability (Thermal Oxide)



This figure shows the superior etch rate relpeatability of the AE-2001 for isotropic oxide etch. The etch profile shows optimum linewidth control, excellent profile control and no loss of critical dimension. The selectivety of oxide substrate to photoresist is high due to fluorination of the surface.

Surplus Process Equipment Corporation

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