Matrix System 1- Strip & Etch
Models 104, 105, 145, 106, 111, 303

Field Proven System 1 150mm Platform

- RF powered and Downstream, isotropic processing
- Reliable, Simple to Operate
- >750 in field
- Small Footprint: 25”W x 28”D
- Low CoO
- CE and UL 1262 Compliant
- Model 111
  - High Rate, No-Damage, Resist Strip (2.25-3.5 um/min)
- Model 106
  - High Temperature Resist Strip (up to 300°C)
- Model 105
  - Moderate Temperature Resist Strip (80-250 °C)
  - Descum / Clean, MEMS Applications
- Model 104
  - Low Temperature (25-100 °C), Controlled Resist Clean / Descum & Surface Preparation, Metal De-Oxidation
- Model 145
  - Low Temperature (25-100 °C), Controlled Resist Clean / Descum
- Model 303
  - Isotropic Etch of Oxides, Nitride, SiChrome, Low K, BCB



Matrix System 1
Through-the-Wall Configuration

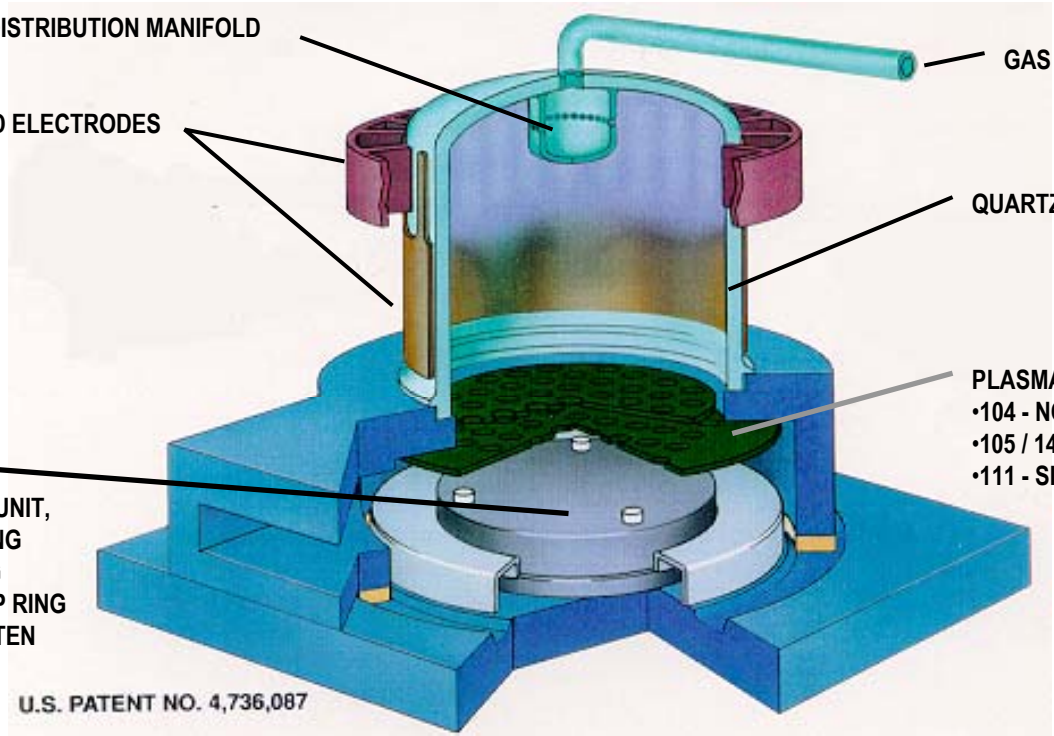
- Saves valuable fab Bay floor space
- Available as Models 204, 205, 245, 206, 211, 403
- Similar footprint in chase area as stand alone style
- Only cassette, robot and display project into Bay.



System 1 Uptime

- MTBF: > 450 hours
- MTTA: > 100 hours
- MTTR: < 3.5 hours
- Overhead (non-plasma): < 32 seconds

System 1 Resist Strip Reactor



Matrix System 1
Model 105

Photoresist Stripper
& Descum Tool

System 1, Model 105

150mm Performance

Specification

SPECIFICATION Rate:	0.8 - 1.5 u/min. (@ 200 to 250 deg C.) bulk strip
	1000 A/min descum@150C
Removal Uniformity:	<15% (Max-Min) Strip
	<15% (Max-Mn) Descum
Temperature Control:	80 - 250°C (±2°C)
Process Range (for bulk strip application)	
Pressure:	3.0 to 5.0 torr
Power:	250-475 W
Flow:	1.0-2.5 liters O2
Endpoint:	Diode array
Particulates:	<0.05/cm² (0.03µm or greater)
Damage	
CV:	<0.1V from control
Mobile Ion:	<1-2 E^{10}
Vt:	0% total shift on 98% of points tested, no shift >5%

Actual

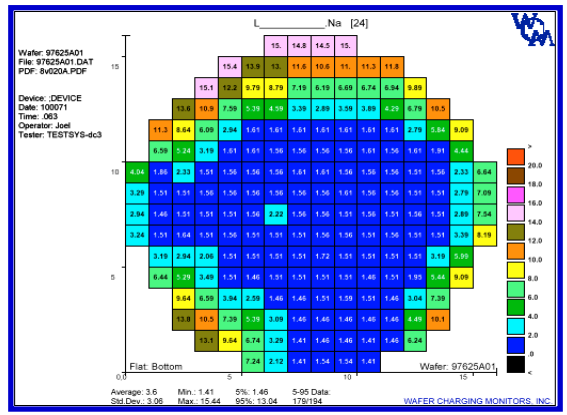
ACTUAL Rate:	1.5 um/min (@30 sec partial strip)*		
Removal Uniformity:	10% (max-min) (6mm edge exclusion)		
Temperature Control:	250°C (±5°C)		
Process conditions			
Pressure:	4.0 torr		
Power:	425 W		
Flow:	O_2 1.75 liters	*Resist Type:	AZ1350J
		Thickness:	1.5 um
		Bake Temp:	120 deg C

System One Models 105 / 106
Charm-2 Wafer Damage Results

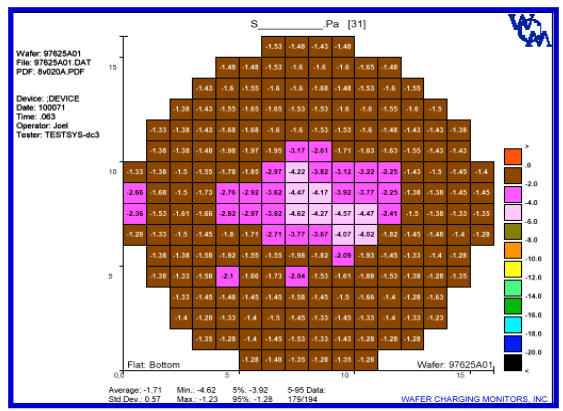
Charm Wafer Sensor Response*

- Peak Voltage Potentials
  - < +13.0 Volts (95%)
  - < -3.9 Volts (5%)
- Charge Flux
  - < +60.0 uA/cm2
  - < -100.0 uA/cm2
- UV Response **None***
  - range 3.2-8eV(138nm-388nm)
- Process Recipe: Standard Strip
  - 4.0T / 425W / 1.75LPM / 250C / 20sec
  - Bare wafer tested without resist
- Charging potential is a function of gate oxide quality and integrity, and should be qualitatively measured by customer

*Reported by Wafer Charging Monitors, Inc. July 14, 2000, 150mm wafer



Positive potentials after processing



Negative potentials after processing