

## Solutions for Plasma Ashing

### ENVIRO™ High Speed Plasma Ashing Systems



ENVIRO-1Xa 2C  
Made in the USA



ENVIRO-1Xa  
Made in the USA



ENVIRO-Optima  
Made in the USA

# Solutions for Plasma Ashing

## ENVIRO™

### High Speed Plasma Ashing Systems

- ENVIRO-1Xa – Single Chamber
- ENVIRO-1Xa 2C – Two Chambers
- ENVIRO-Optima – Three Chambers

ENVIRO™ features common process chambers mated to high speed wafer handlers for R&D, pilot production and high-volume manufacturing; including thin wafer handling.

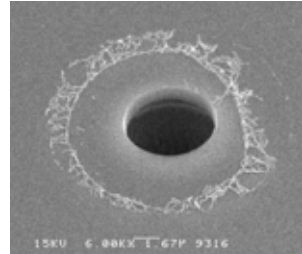
### ENVIRO offers the flexibility for multiple applications, including:

- Descum
- Thick resist strip (including: SU-8, KMPR, silanated)
- Polymer and residue removal
- MEMS Release (organic sacrificial layer removal)
- Backside clean (bevel/edge)

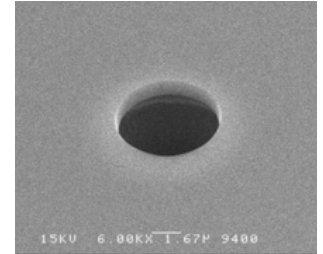
### ENVIRO offers a wide process operating range:

- Ashing Rate – Several nm/min to more than 10um/min
- Wide range of stage temperature control (hot plate or optional cold plate)
- High efficiency downstream plasma source
- Up to 4 MFC's, 2 standard, 2 optional
- Gas chemistries: various, including halogen bearing

### Post Bosch Process Residue Removal



After Conventional Ash Process



After ENVIRO Ash Process

### MEMS Device Descum

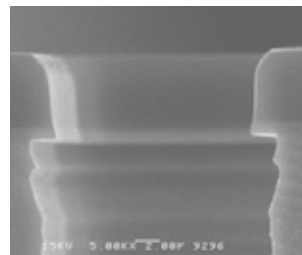


Pre Descum

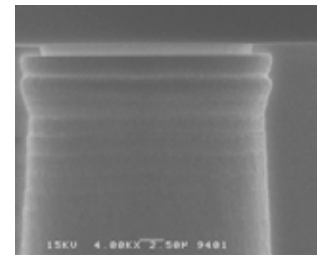


Post Descum

### Post Deep Silicon Etch Resist Removal



Pre Ashing



Post Ashing

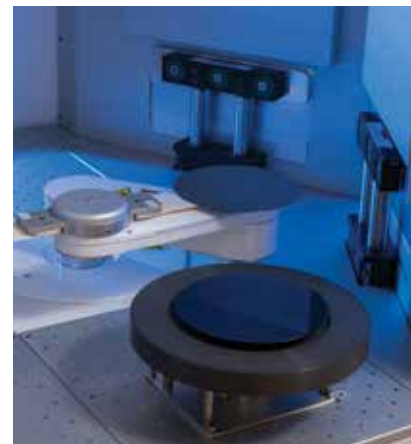
## ENVIRO-1Xa™ (single process chamber)

- 70 WPH (20 sec process time)
- 100 – 200 mm wafer sizes
- Non-contact end effector option
- HEPA option
- Dual cassette loading:
  - SMIF option



## ENVIRO-1Xa 2C (dual process chambers)

- 115 WPH (20 sec process time)
- 100 – 300 mm wafer size with ability to run 2 different sizes simultaneously in dedicated chambers
- Non-contact end effector option
- HEPA option
- Dual cassette loading:
  - SMIF option
  - FOUP option



Cooling plate and wafer handling robot

# Solutions for Plasma Ashing

## ENVIRO-Optima™ (3 process chambers)

- 100 – 300 mm wafer size
- 180 WPH throughput (20 sec process)
- Equipment front end module (EFEM) with 4 integrated loadport modules – open cassette, SMIF and FOUP compatible
- High throughput in a compact footprint



Back of  
ENVIRO-Optima.



Side of  
ENVIRO-Optima.

## About ULVAC Technologies, Inc.

ULVAC Technologies, Inc. is an international corporation that design and manufactures systems for industrial and research applications utilizing vacuum technology. Our products cover a broad spectrum of markets, including: equipment for the semiconductor, MEMS, solar, flat panel display, automotive, medical, electronics, and refrigeration industries. ULVAC Technologies uses a class-10 process development laboratory and customer demonstration facility to meet the unique needs of their different markets. ULVAC Technologies is a subsidiary of ULVAC, Inc., which is made up of over 45 companies engaged in most sectors of the vacuum industry.

The company is ISO 9001 and 14001 certified.



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