

Solutions for Plasma Ashing

ENVIRO™ High Speed Plasma Ashing Systems



ENVIRO-1Xa 2C
Made in the USA



ENVIRO-Optima
Made in the USA



ENVIRO-1Xa
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.

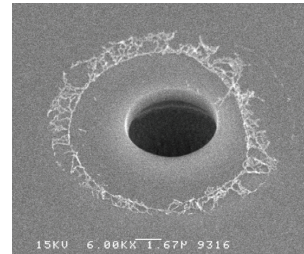
ENVIRO offers the flexibility for multiple applications, including:

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

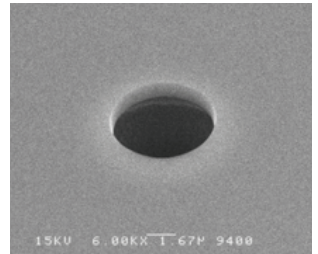
ENVIRO offers a wide process operating range:

- 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

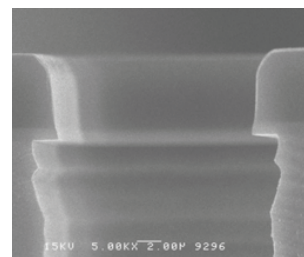


Pre Descum

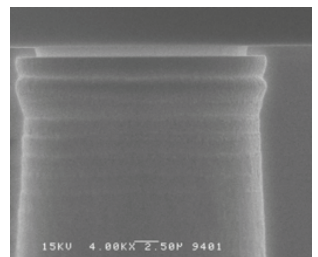


Post Descum

Post Deep Silicon Etch Resist Removal



Pre Ashing



Post Ashing

Plasma Source Options for ENVIRO

ICP Source

The original Optima was designed for high throughput and high reliability utilizing a compact, inductively coupled plasma (ICP) source. To meet the demands for high productivity, the process focus was on high film removal rates, MEMS applications, and high dose implant strip (HDIS).

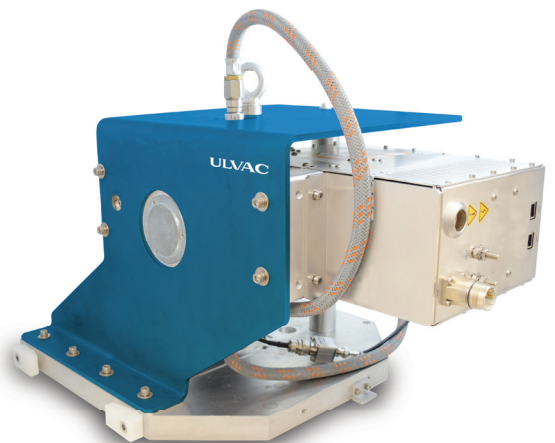
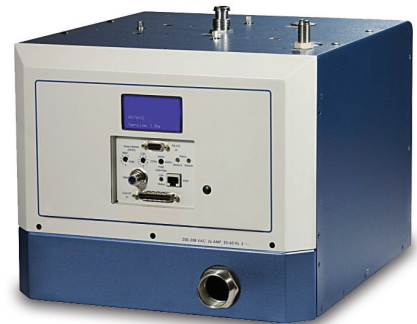
New MW Source: Expanded Process Capabilities

With the addition of microwave frequency plasma source technology, the Optima can support a wider range of process chemistries to address low temperature polymer removal and low oxidation of material substrates. The microwave energy provides low plasma induced damage with test results indicating approximately 50% reduction from the ICP source.

- Wider Range of Processes
- Low Temperature Polymer Removal
- Low Oxidation of Material Substrates
- 50% Reduction in Plasma Induced Damage

Configured with either the microwave or the ICP source options, the Optima continues to support the needs for high volume production with its ability to replace multiple legacy systems with a single Optima tool. ULVAC customers have put into mass production one Optima system to replace from three to seven legacy dry strip systems.

Coming Soon: RF Bias



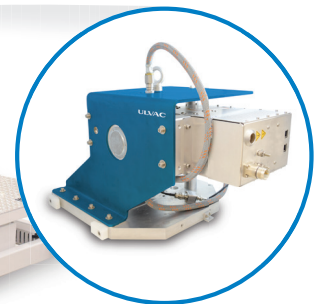
Solutions for Plasma Ashing

ENVIRO-Optima™ (3 process chambers)

- 100 – 300 mm wafer size
- 240 WPH mechanical throughput
- Equipment front end module (EFEM) with 4 integrated loadport modules – open cassette, SMIF and FOUP compatible
- High throughput in a compact footprint
- Selectable plasma source for a wider range of process chemistries



Compact MW
downstream source



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.

ULVAC

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