PlasmaPro® Estrelas 100

Next Generation Plasma Etch System for MEMS
The development and commercialisation of new Micro Electro Mechanical Systems (MEMS) is becoming a reality. Traditional devices such as accelerometers, gyroscopes and microphones continue to see increased adoption in many consumer electronics, displays and automotive applications.

MEMS can provide a solution where there is a requirement for a device or sensor to be miniaturised. Devices emerging in the R&D phase include energy harvesting; speakers; RFID; pico projectors; oscillators; micro fuel cells; and autofocus technologies amongst others.

Emerging Applications
Oxford Instruments Plasma Technology continues to provide technologies that address existing and emerging applications in the MEMS market. With a broad process and application portfolio, our technologies enable many of the applications identified today and those of tomorrow.

The development of the PlasmaPro Estrelas 100 deep silicon etch technology from Oxford Instruments delivers industry leading process performance.

Research and Development
Developed with the R&D market in mind, the PlasmaPro Estrelas 100 offers the ultimate in process flexibility. Nano and micro structures can be realised as the hardware has been designed with the ability to run Bosch™ and cryo etch technologies in the same chamber. From smooth sidewall processes to high etch rate cavity etches, the PlasmaPro Estrelas 100 has been designed to ensure that the wide range of MEMS applications can be realised without the need to change the chamber hardware.

REFERENCES
1. (A.M. Fitzgerald and Associates, September 2006),
2. (Yole Development Semicon West 2010)
PlasmaPro Estrelas 100

Exceptional flexibility and throughput

Superior technical capabilities
Compatible with 50mm to 200mm ensures that you have the ability to develop devices that can be taken to production using the same chamber hardware.

- Mechanical and electrostatic clamp
- Heated liners
  - Increased plasma stability, eliminating ‘first wafer effect’
  - Reduced polymer build up, increasing the mean wafers between mechanical cleans
- Fast acting closed coupled MFCs utilising software originally designed for atomic layer deposition
- SOI capability
- Reduced chamber volume ensuring high gas conductance
- ‘Active spacer’ technology reduces ion bombardment at the wafer surface and minimises mask undercut
- Low Cost of Ownership through optimised hardware and process control

Plasma Pro Estrelas

Loadlock
The PlasmaPro Estrelas 100 System loadlock has been ergonomically designed to allow quick and easy access for sample transfer.

Cluster platform
For the ultimate in throughput and productivity, the PlasmaPro Estrelas 100 etch is also available on a four or six sided cluster tool.

Reliability and diagnostics
Fault and tool status diagnostics are achieved through the front end software. The system reports on the status of key components, leading to rapid and detailed fault identification.
System control
- Clear and simple to use software ensures ease of use for process operators, while retaining the full functionality for production facility managers and service staff.
- Fully SECS/GEM compatible
- The front end visual interface, which controls and monitors the process tool, is configured exactly for the customer's system
- Process recipes are written, stored and recalled through the same software, allowing a comprehensive recipe library to be built
- Password controlled user login allows different levels of user access and tasks, from ‘one-button’ run operation to full system control
- Continuous system data logging (50 ms) ensures effective traceability of each wafer and process run

Global process support for the lifetime of the tool
The priorities of Oxford Instruments’ applications teams are:
- Fast turnaround of pre-sale development samples
- Effective post-sales support for the lifetime of the tool
To achieve this, we have dedicated applications laboratories in the UK, USA and Taiwan. With over 25 plasma systems in our labs, our engineers have the tools available to constantly be working on process and hardware developments.

Cost of ownership and customer support
We work with you to create the right system, process, and support package to meet your specific requirements. Our range of Flexible Support Agreements will be tailored to your needs. This can include:
- Guaranteed response times for support engineer visits and technical hotline calls
- Choice of support coverage up to 24/7
- Scheduled preventative maintenance calls
- Managed spares inventory options, including customer dedicated stock, via our parts locations worldwide
- Preferential spare part pricing
- Process training
- Certified training courses for your own engineers in preventative maintenance and first level troubleshooting

Superior environmental efficiency
PlasmaPro Estrelas 100 has a low heat load and high energy efficiency.
The tool has efficient ergonomics and complies with Semi S2/S8 and cluster capability, making this a tool of choice.

Low cost of ownership and world class customer support
Technical specifications

Load lock configuration

All dimensions in mm.