PlasmaPro™ 800Plus

Large capacity open-loading process solutions for plasma etch and deposition

The Business of Science®
Versatile plasma etch and deposition solutions

The PlasmaPro 800Plus offers a large area plasma etch and deposition solution with convenient open loading in a compact, small footprint system, making it easy to site and easy to use, with no compromise on process quality.

The PlasmaPro 800Plus with 380mm or 460mm diameter table offers full 300mm or large batch 43 x 50mm (2”) capacity, enabling full production solutions in a small cleanroom footprint.

Wide range of applications, including:

- High quality PECVD of silicon nitride and silicon dioxide for photonics, dielectric layer passivation and many other applications
- Failure analysis dry etch de-processing using our specially configured failure analysis tools, with RIE and dual-mode RIE/PE processes ranging from packaged chip and die etch through to full 300mm wafer etch
- SiO₂, SiNₓ, and quartz etch
- Metal and polyimide etch
- Passivation deposition for high brightness LED production
- III-V etch processes

Range of electrode sizes and wafer capacity

<table>
<thead>
<tr>
<th>Wafer stage (lower electrode) sizes</th>
<th>380mm RIE/PE</th>
<th>460mm RIE &amp; PECVD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wafer loading capacity*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>50mm/2”</td>
<td>30</td>
<td>&gt; 40</td>
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<tr>
<td>75mm/3”</td>
<td>13</td>
<td>21</td>
</tr>
<tr>
<td>100mm/4”</td>
<td>8</td>
<td>12</td>
</tr>
<tr>
<td>150mm/6”</td>
<td>3</td>
<td>5</td>
</tr>
<tr>
<td>200mm/8”</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>300mm/12”</td>
<td>1</td>
<td>1</td>
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</tbody>
</table>
Multiple Process Technology Configurations

**PlasmaPro 800Plus PECVD Tool**
Designed to produce high quality uniform dielectric films. Stress control in PECVD is provided by selectable or mixed high/low frequency plasma power, enabling deposited films to be tuned for tensile, compressive or low stress.

**PlasmaPro 800Plus RIE/PE Tool**
Combines anisotropy of RIE with selectivity of PE mode etching in a single system.

**PlasmaPro 800Plus RIE Tool**
Proven dry etching used widely throughout the industry.

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**Optimised Plasma Sources**
Optimised showerhead design delivers high performance PECVD processes with excellent deposition uniformity.

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Benefits of PlasmaPro 800Plus

The PlasmaPro 800Plus offers numerous benefits, including:

- High performance processes
- Substrate temperature control
- Process control – etch end point detection
- Reliability and diagnostics
- Range of electrode sizes and wafer capacity

High performance processes

PlasmaPro 800Plus optimised electrode cooling results in excellent process control, wafer temperature uniformity and great flexibility, covering a wide range of processes.

- Enhanced process uniformity and rates are guaranteed by using a high-conductance radial (axially symmetric) pumping configuration
- The addition of datalogging of the capacitor values offers traceability and history of chamber and process conditions
- A close-coupled turbo pump provides high pumping speed and excellent base pressure
- Optimised plasma conditions are enabled by three levels of control of matching capacitor values:
  - Easy automatic plasma generation using full automatic matching network
  - Faster switch-over between widely differing processes using the range of preset capacitor values
  - Process fine tuning and diagnostics with the use of recipe-settable capacitor values in PC2000™ software
- Optical emission spectrometry (OES) for large sample or batch process end-pointing by detecting changes in etch by-products or depletion of reactive gas species, and for chamber clean end-pointing
Substrate temperature control

Substrate temperature control is provided by a range of fluid-cooled and/or electrically-heated electrodes, 460mm in diameter, with a temperature range up to 400°C. This results in excellent electrode temperature control and stability.

Process Control – Etch end point detection

Excellent etch control and rate determination can be provided by optional end-point detection, integrated with PC2000 process tool software.

- Laser end-point detection using interferometry to measure etch depth in transparent materials on reflective surfaces (for example, oxides on Si), or reflectometry for non-transparent materials (such as metals) to determine layer boundaries.

Easy open access

Clear access to the lower electrode and smooth, particle free chamber opening operation is provided by the reliable pneumatic hoist mechanism.
Plasma Accelerator for Advanced Die Processing

Innovative processes developed for fast de-processing of packaged devices using focussed plasma.

Oxide etch rate is 8 times faster than ICP mode, and 20 times faster than RIE mode process.

Gas Control System

4-, 8- or 12-line gas pod options enable maximum process flexibility, with easy upgrade from 4 to 8 or 8 to 12 gas lines.

- The gas pod may be sited remotely in a service area, and is vented and ready for ducting into an extraction system for full safety compliance.

Delivers up to 20 times faster etching rates
Process tool software
Oxford Instruments software is renowned for its clarity and ease of use, making it quick to train process operators while retaining full functionality for fab managers and service staff.

- 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, building a library
- Password controlled user login allows different levels of user access and tasks, from ‘one-button’ run operation to full system functions
- Continuous system data logging ensures effective traceability of each wafer and process run
- Fully GEM/SECS compatible

Cost of ownership and customer support
We work with our customers to create the right system, process, and support package to meet your specific requirements, so our range of Service Level Agreements (SLA) 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 maintenance training courses for customer’s own engineers in preventative maintenance and first level troubleshooting
Worldwide Service and Support

Oxford Instruments is committed to supporting our customers’ success. We recognise that this requires world class products complemented by world class support. Our global service force is backed by regional offices, offering rapid support wherever you are in the world.

We can provide:
- Tailored service agreements to meet your needs
- Comprehensive range of structured training courses
- Immediate access to genuine spare parts and accessories
- System upgrades and refurbishments

visit [www.oxford-instruments.com](http://www.oxford-instruments.com) for more information