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

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Oxford Instruments offers a range of plasma etch and deposition systems, including:
- Plasmalab® 80 Plus
- Plasmalab® 800 Plus

Compact open-loading process solutions for plasma etch and deposition

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The **Plasmalab 80Plus** and **Plasmalab 800Plus** offer versatile plasma etch and deposition solutions with convenient open loading in a compact, small-footprint system, making them easy to site and easy to use, with no compromise on process quality.

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**Plasmalab 80Plus**

The **Plasmalab 80Plus** is ideally suited to R&D or small-scale production, with 240 mm diameter table allowing 200 mm (8") wafer or 9 x 50 mm (2") batch capacity. The open-load design allows fast wafer loading and unloading, ideal for research, prototyping and low-volume production.

**Plasmalab 800Plus**

The **Plasmalab 800Plus** with 380 mm or 460 mm diameter table offers full 300 mm (12") or large batch 48 x 50mm (2") capacity, enabling full production solutions in a small cleanroom footprint.

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**Wide range of applications**

Applications include:
- SiO₂, SiNₓ and quartz etch
- Metal etch
- Polymide etch
- High quality PECVD of silicon nitride and silicon dioxide for photonics, dielectric layers, passivation and many other applications
- Hard mask deposition and etch for high brightness LED production
- Failure analysis dry etch de-processing using the specially-configured **Plasmalab µEtch** tools, with RIE, dual-mode RIE/PE and ICP processes ranging from packaged chip and die etch through to full 300 mm wafer etch
- III-V etch processes (with optional glovebox to enhance safety of toxic gas use)
System benefits

Substrate temperature control
- Substrate temperature control is provided by a range of fluid-cooled and/or electrically-heated electrodes, with a temperature range up to 400 °C and excellent electrode temperature control and stability.
- On the Plasmalab®80Plus, options are available for helium-assisted substrate backside cooling, for optimum temperature control during processes.
- Cooling on the Plasmalab®80Plus can be further extended down to -150 °C with the cryogenic electrode option, enabling Si cryo-etch processes.

PECVD stress control
- 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.

Etch end-point detection
- Excellent etch control and rate determination can be provided by optional end-point detection, integrated with the 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.
- 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.

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

The electrostatic shield design in the Plasmalab 80Plus ICP configuration avoids energetic ion bombardment and capacitive coupling, providing low substrate damage, with long life for the ICP tube and reduced maintenance.

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

Cost of ownership

High performance and excellent uniformity processes mean increased productivity and tool utilization. Together with excellent reliability, these create low cost of ownership for Oxford Instruments’ process tools. Supported by Oxford Instruments’ preventative maintenance and service contract packages, the ultimate in system uptime can be assured.

Easy open access

- Clear access to the lower electrode and smooth, particle-free chamber opening operation is provided by the reliable pneumatic hoist mechanism

High performance processes

- Enhanced process uniformity and rates are guaranteed by using a high-conductance radial (axially symmetric) pumping configuration
- 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 through the use of recipe-settable capacitor values in the PC 2000 software
- 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

Easy maintenance

- Easy access to main components for maintenance through removable panels on each side

Range of electrode sizes and wafer capacity

<table>
<thead>
<tr>
<th>Wafer stage (lower electrode) sizes</th>
<th>Plasmalab 80Plus</th>
<th>Plasmalab 800Plus</th>
</tr>
</thead>
<tbody>
<tr>
<td>240 mm</td>
<td></td>
<td></td>
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<tr>
<td>380 mm</td>
<td></td>
<td></td>
</tr>
<tr>
<td>460 mm</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Wafer loading capacity*</th>
<th>9</th>
<th>30</th>
<th>&gt; 40</th>
</tr>
</thead>
<tbody>
<tr>
<td>50 mm/2”</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>75 mm/3”</td>
<td>4</td>
<td>13</td>
<td>21</td>
</tr>
<tr>
<td>100 mm/4”</td>
<td>2</td>
<td>8</td>
<td>12</td>
</tr>
<tr>
<td>150 mm/6”</td>
<td>1</td>
<td>3</td>
<td>5</td>
</tr>
<tr>
<td>200 mm/8”</td>
<td>1</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>300 mm/12”</td>
<td></td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>

* maximum, actual loading is process-dependent

Multiple process configurations

<table>
<thead>
<tr>
<th></th>
<th>Plasmalab 80Plus</th>
<th>Plasmalab 800Plus</th>
</tr>
</thead>
<tbody>
<tr>
<td>PECVD</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>RIE</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>RIE/PE dual mode</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>ICP</td>
<td></td>
<td>x</td>
</tr>
</tbody>
</table>

Oxford Instruments’ PC 2000 software is clear, easy to use, quick to learn and configured exactly for the customer’s system. Its visual interface controls and monitors the process tool, and offers the ability to control a tool cluster from a single interface and PC.

Process tool software

Process ‘recipes’ are written, stored and recalled through the same software, building into a process library. In cassette-to-cassette and cluster systems, the users can associate individual recipes with each wafer to be processed, and run a complete set of process steps, loops and repeats. Password-controlled user login allows different levels of user access and tasks, from ‘one-button’ run operation to full system functions. Continuous process data logging ensures traceability of each wafer and process GEM/SECS compatible.