Technology Transfer

Training and process technology trials at Logitech cover equipment and sample handling, cleaning, bonding, gauging and process adjustments, with which the operator needs to be familiar. Logitech are dedicated to complete success and through training at our purpose built laboratories or at client premises, the team ensures that personal training is provided at a level relevant to the clients process requirements.

Years of experience has identified that instruction manuals alone do not provide operators with the levels of knowledge and success that are achievable through personal training and practical experience. Logitech are so committed to this programme of technology transfer that it provides a full three day training course, with all material processing systems purchased. Courses cover all aspects of system operation, maintenance and customer focussed process trials. This unique approach ensures successful installation, optimum use and maintenance of Logitech systems.

Support is provided directly by Logitech and via an extensive global network of, Logitech trained, dealers. This enables us to provide a consistently high level of localised support and services from our technical base in Scotland.

A 12 month warranty is provided for all Logitech machines purchased. The client support policy at Logitech aims to resolve any client issues, be it mechanical, electrical or technological, in a fast and effective manner. The “no quibble” policy for replacement of faulty components ensures that any response to client difficulty is immediate.

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Application Process

Lithium Niobate (LN03) is frequently used for optical waveguides, optical modulators, mobile phones, piezoelectrics and linear/non-linear applications.

Logitech has developed a technology package which fully meets the requirements of these demanding applications.

Expected results from a Logitech System for a 3” diameter sample is:
• Flatness: <4µm
• Surface Finish: <1µm
• Surface Roughness: <1nm
• Thickness Control: <2µm
• Parallelism: <2µm

(process results will vary slightly according to the quality of sample being used)

Logitech Limited
Head Office
Erskine Ferry Road,
Old Kilpatrick, Glasgow
G60 5EU Scotland

T: +44 (0) 1389 875444
F: +44 (0) 1389 890956
E: enquiries@logitech.uk.com
W: www.logitech.uk.com

USA Contact Information:
T: +1 800 490 1749
**Application Analysis**

Our technical team work, in confidence, with customers to identify the most relevant system for optimum results on their particular material processing problems. Additional information is provided in a detailed specification outlining production quantity, surface finish and geometric tolerance requirements.

Logitech systems are used in the fabrication process of devices such as optical phase modulators for:

- **Cutting of substrates from the polished wafer**
- **Smoothing lapping and polishing of wafer faces to defect-free quality (Sub nm Ra)**
- **Face and edge lapping and polishing operations.**

### Typical Process Route for Opto-electronic Substrates

**Opto-electronic System Range**

<table>
<thead>
<tr>
<th>No of BWID Machines</th>
<th>Number of Positions</th>
<th>Water De Isaac Process</th>
</tr>
</thead>
<tbody>
<tr>
<td>8</td>
<td>BJ12 12 83mm, 105mm or 112mm</td>
<td>BJ12 83mm, 105mm or 112mm</td>
</tr>
<tr>
<td>8</td>
<td>BJ2 2 83mm, 105mm or 112mm</td>
<td>BJ2 83mm, 105mm or 112mm</td>
</tr>
<tr>
<td>6</td>
<td>BJ6 6 83mm, 105mm or 112mm</td>
<td>BJ6 83mm, 105mm or 112mm</td>
</tr>
<tr>
<td>2</td>
<td>LP50 3 2µm/min &lt;2µm: 2&quot; &amp; 4&quot; &lt;4 to 6: 6&quot; &amp; 8&quot; 150mm (6&quot;) or smaller multiples</td>
<td>LP50 2µm/min &lt;2µm: 2&quot; &amp; 4&quot; &lt;4 to 6: 6&quot; &amp; 8&quot; 150mm (6&quot;) or smaller multiples</td>
</tr>
<tr>
<td>1</td>
<td>PM5 1 &lt;3nm Up to 100mm (4&quot;)</td>
<td>PM5 &lt;3nm Up to 100mm (4&quot;)</td>
</tr>
</tbody>
</table>

**Precision Polishing Jigs**

<table>
<thead>
<tr>
<th>No Workstations</th>
<th>Removal rate</th>
<th>Finisher</th>
<th>Water De Isaac Process</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td>PPS 1</td>
<td>-</td>
<td>PPS 1</td>
</tr>
<tr>
<td>6</td>
<td>PPS 2</td>
<td>-</td>
<td>PPS 2</td>
</tr>
<tr>
<td>3</td>
<td>PM5</td>
<td>-</td>
<td>PM5</td>
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</tbody>
</table>

**Measurement & Inspection**

<table>
<thead>
<tr>
<th>No Workstations</th>
<th>Av. Surface Roughness</th>
<th>Wafer Dia</th>
<th>Process (Max)</th>
</tr>
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<tbody>
<tr>
<td>10</td>
<td>0.05 µm</td>
<td>152mm</td>
<td>78mm</td>
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<tr>
<td>6</td>
<td>0.1 µm</td>
<td>112mm</td>
<td>55mm</td>
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</table>

**Water Lapping Systems**

<table>
<thead>
<tr>
<th>No Workstations</th>
<th>Positional Accuracy</th>
<th>Speed</th>
<th>Capability (Max)</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>6</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>3</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

**Cleaning the Bond**

This is a critical stage which must be carried out carefully to ensure there is no chipping of the fine square edges of the plastic.

**Inspecting the End Result**

The samples are now ready for inspection by microscope before passing on to the next stage of processing.

Further details on these products can be found at www.logitech.uk.com.