### Specifications*

<table>
<thead>
<tr>
<th></th>
<th>UltraSurf 4X 400</th>
<th>UltraSurf 5X 400</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Travels</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>X - Axis Travel</td>
<td>400 mm (15.7&quot;)</td>
<td>400 mm (15.7&quot;)</td>
</tr>
<tr>
<td>Y - Axis Travel</td>
<td>4 mm (0.16&quot;)</td>
<td>200 mm (7.87&quot;)</td>
</tr>
<tr>
<td>Z - Axis Travel</td>
<td>140 mm (5.5&quot;)</td>
<td>140 mm (5.5&quot;)</td>
</tr>
<tr>
<td>B - Axis Travel</td>
<td>+/- 120°</td>
<td>+/- 120°</td>
</tr>
<tr>
<td>C - Axis Travel</td>
<td>360° Continuous</td>
<td>360° Continuous</td>
</tr>
<tr>
<td><strong>Resolution</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Linear</td>
<td>5 nm</td>
<td>5 nm</td>
</tr>
<tr>
<td>Rotary</td>
<td>.05 arc-sec</td>
<td>.05 arc-sec</td>
</tr>
<tr>
<td><strong>Maximum Velocity</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Linear</td>
<td>Up to 20 mm/sec</td>
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</tr>
<tr>
<td>Rotary</td>
<td>66 RPM</td>
<td>22 RPM</td>
</tr>
<tr>
<td>Max Scanning Speed**</td>
<td></td>
<td>1,000 Hz</td>
</tr>
</tbody>
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* Specifications subject to change. Contact OptiPro for the latest specifications.

** 1,000 Hz with appropriate probe configuration.

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UltraSurf 4X 400

Capable of measuring radius, surface form, center thickness, and wedge of rotationally symmetric optics such as spheres, aspheres, hemispheres, hyper-hemispheres, and paraboloids.

In addition to having all the capabilities of the UltraSurf 4X 400, efficiently measure freeform surfaces with 5 axes of computer-controlled motion.

UltraSurf 5X 400

Capable of measuring radius, surface form, center thickness, and wedge of rotationally symmetric optics such as spheres, aspheres, hemispheres, hyper-hemispheres, and paraboloids.

In addition to having all the capabilities of the UltraSurf 4X 400, efficiently measure freeform surfaces with 5 axes of computer-controlled motion.

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Unparalleled Dedication to Customer Success

**Sales**
Developing Partnerships

**Service**
Reinforcing Relationships

**Support**
Ensuring Excellence

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Ontario, NY 14519 USA
585.265.0160
sales@optipro.com
www.optipro.com

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www.optipro.com
A metrology solution for today’s requirements.

Advancements in optical manufacturing technology have motivated optical designers to implement steep aspheres, high departure surfaces, and freeform optics into their systems. Expand your metrology capabilities and take on more challenging jobs with confidence with the UltraSurf non-contact metrology system. UltraSurf is a fast, precise, and reliable solution to qualify the form and figure of ANY asphere up to 400mm in diameter, as well as other complex optical components such as acylinders, freeforms and more. With multiple non-contact probes available, companies can safely measure radius, surface form, center thickness and wedge - all in one measurement.

High Performance Machines

Engineered for precision and repeatability

Intelligent Software Technology

UltraSurf Software: User-friendly yet highly capable

- Many options for defining the surface of the optic to be measured
- Easy to set up non-rotationally symmetric (freeform) optics with on-machine alignment by measuring datums
- Optimized data acquisition for fast 2D and 3D measurements
- Full control of analysis process and ability to export data to several file formats

Capabilities

- Standard
- Available
- N/A

UltraSurf 4X 400: 4-axis non-contact metrology

Standard Features:
- Optical pen for measuring single surface to 0.25 um PV
- UltraSurf Software for analyzing measurements

Optional Features:
- Optical pen for dual-surface scanning

UltraSurf 5X 400: 5-axis non-contact metrology

Standard Features:
- Optical pen for measuring single surface to 0.25 um PV
- UltraSurf Software for analyzing measurements

Optional Features:
- Optical pen for dual-surface scanning

Typical Asphere Measurement Times

<table>
<thead>
<tr>
<th>Diameter</th>
<th>Sag</th>
<th>Measurement Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ø50 mm</td>
<td>5 mm sag</td>
<td>5 min</td>
</tr>
<tr>
<td>Ø100 mm</td>
<td>10 mm sag</td>
<td>10 min</td>
</tr>
<tr>
<td>Ø150 mm</td>
<td>15 mm sag</td>
<td>15 min</td>
</tr>
<tr>
<td>Ø200 mm</td>
<td>20 mm sag</td>
<td>20 min</td>
</tr>
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Ideal for a wide range of applications:

- Complex geometries:
  - Steep aspheres (1)
  - Axicons (2)
  - Acylinders
  - Freeform optics

- A variety of materials:
  - Optical glasses
  - Technical ceramics
  - Crystals
  - Metals (3)

- Different surfaces:
  - Ground surfaces
  - Polished Surfaces
  - Diamond-turned surfaces (4)
  - High or low reflectivity
UltraSurf™
Non-Contact Metrology Systems

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