## UltraSurf Non-Contact Metrology Systems

*Available in 4 or 5 axis configurations*

### UltraSurf 4X 300

- **Travels**
  - X - Axis Travel: 300 mm (11.8")
  - Y - Axis Travel: 200 mm (7.87")
  - Z - Axis Travel: +/-120°
  - B - Axis Travel: 360° Continuous
  - C - Axis Travel: 360° Continuous

- **Resolution**
  - Linear: 5 nm
  - Rotary: .05 arc-sec

- **Maximum Velocity**
  - Linear: Up to 20mm/sec
  - Rotary: 66 RPM
  - Max Scanning Speed**: 1,000 Hz

### UltraSurf 5X 400

- **Travels**
  - X - Axis Travel: 400 mm (15.7")
  - Y - Axis Travel: 200 mm (7.87")
  - Z - Axis Travel: 200 mm (7.87")
  - B - Axis Travel: +/-120°
  - C - Axis Travel: 360° Continuous

- **Resolution**
  - Linear: 5 nm
  - Rotary: .05 arc-sec

- **Maximum Velocity**
  - Linear: Up to 20mm/sec
  - Rotary: 22 RPM
  - Max Scanning Speed**: 1,000 Hz

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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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**In addition to having all the capabilities of the UltraSurf 4X 300, efficiently measure freeform surfaces with 5 axes of computer controlled motion and UltraSurf’s 3D interface.**

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

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**UltraSurf Non-Contact Metrology Systems**

Scan to watch UltraSurf in action

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585.265.0160
www.optipro.com

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OptiPro Systems
MADE IN USA

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UltraSurf in action
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. Measuring these surfaces with profilometers or CMMs can be difficult due to challenging geometric features. In addition, these methods can damage the workpiece during inspection, costing your company valuable time and a lot of money.

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 roughness, center thickness and wedge - all in one measurement.

How it works:
UltraSurf is a computer-controlled scanning system that incorporates high quality machine components and the latest non-contact probe technologies. The non-contact scanning method avoids common pitfalls with stylus contact instruments.

The measuring probe is scanned over the optical surface while maintaining perpendicularity and a constant focal offset. The probe utilizes absolute distance to resolve metrology challenges such as step heights.

Multiple probe technologies are available on UltraSurf. Each probe has its advantages relative to the material properties, surface finish, and figure error of an optical component.

Features and Benefits
Loaded with beneficial features, including a small footprint and an ergonomic design, UltraSurf was engineered with the customer in mind:

- High quality machine components deliver accurate measurements with efficiency
- A full software analysis package with a simple but powerful graphical user interface allows operators to set up measurements fast
- Metrology data can be exported for corrections on deterministic grinding and polishing machines

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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

Typical Asphere Measurement Times

<table>
<thead>
<tr>
<th>Diameter</th>
<th>Sag</th>
<th>Data Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ø50 mm</td>
<td>5 mm sag</td>
<td>245,000 data points</td>
</tr>
<tr>
<td>Ø100 mm</td>
<td>10 mm sag</td>
<td>600,000 data points</td>
</tr>
<tr>
<td>Ø150 mm</td>
<td>15 mm sag</td>
<td>1,150,000 data points</td>
</tr>
<tr>
<td>Ø200 mm</td>
<td>20 mm sag</td>
<td>1,300,000 data points</td>
</tr>
</tbody>
</table>

- 5 min
- 10 min
- 15 min
- 20 min

Reliability: Environmentally enclosed reduces error from outside elements

High Speed: Advanced software and algorithms for fast 2D and 3D measurements

Stability: Rock-solid granite base delivers accuracy and repeatability
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**UltraSurf 5X 400**

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### Specifications*

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<th>UltraSurf 5X 400</th>
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<tr>
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<tr>
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### Resolution

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<th>Type</th>
<th>UltraSurf 4X 300</th>
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<tbody>
<tr>
<td>Linear</td>
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<tr>
<td>Rotary</td>
<td>0.05 arc-sec</td>
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### Maximum Velocity

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<td>Rotary</td>
<td>66 RPM</td>
<td>22 RPM</td>
</tr>
<tr>
<td>Max Scanning Speed**</td>
<td>1,000 Hz</td>
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