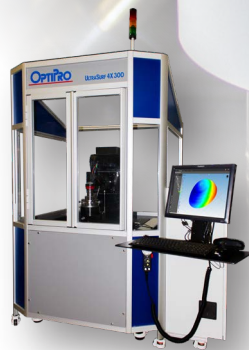




UltraSurf™

Non-Contact Metrology Systems



UltraSurf 4X 300

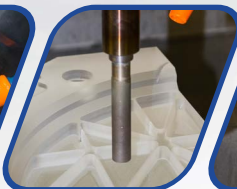


UltraSurf 5X 400

Innovative Machines for Precision Optics and Technical Ceramics



CNC Optical
Grinding Machines



Ultrasonic
Machining Centers



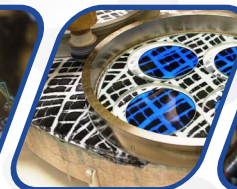
Optical
Centering Machines



CNC Spherical
Polishing Machines



CNC Asphere/Freeform
Polishing Machines



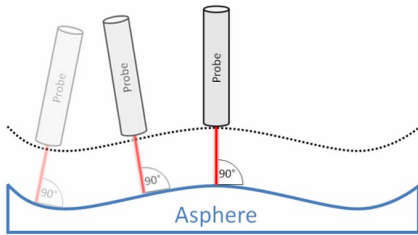
Planetary
Polishing Machines



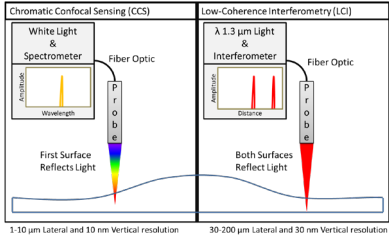
Non-Contact
Metrology Solutions

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.



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.



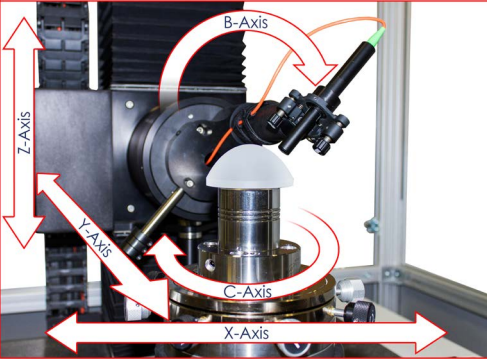
Multiple probe technologies are available on UltraSurf. Each probe has its advantages relative to the material properties, surface finish, and figure error of an optical component.

High Performance Machines

Engineered for precision and repeatability

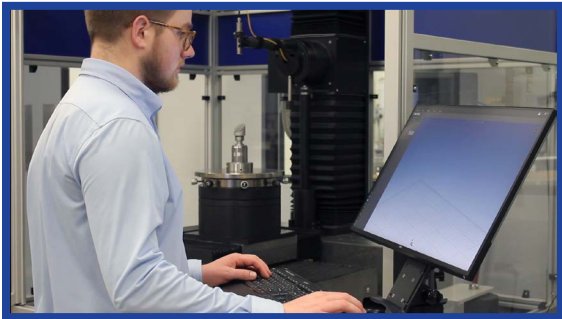
High Precision Non-Contact Metrology:

- 4 or 5 Axis Air-Bearing System
- Linear Motors
- X, Y & C Axes Move the Part
- Brushless DC Rotary Motors
- Z & B Axes Move the Probe
- High Resolution Feedback

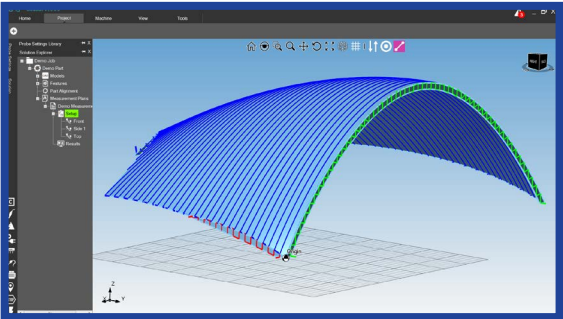


Intelligent Software Technology

UltraSurf Software: User-friendly yet highly capable



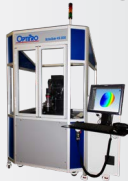
- Many options for defining the surface of the optic to be measured
- Easy to set up non-rotationally symmetric (freeform) optics with on-machine alignment by measuring datums
- Optimized data acquisition for fast 2D and 3D measurements
- Full control of analysis process and ability to export data to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



Capabilities

● Standard ○ Available — N/A

UltraSurf 4X 300: 4-axis non-contact metrology



Standard Features:

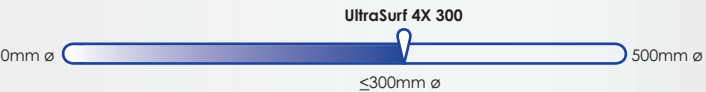
- Optical pen for measuring single surface to 0.3 um PV
- UltraSurf Software for analyzing measurements

Optional Features:

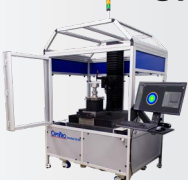
- Optical pen for dual-surface scanning

Planos	Spheres	Aspheres	Cylinders Acylinders	Prisms	Freeforms
●	●	●	○	●	—

Sphere & asphere part size limit



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



Standard Features:

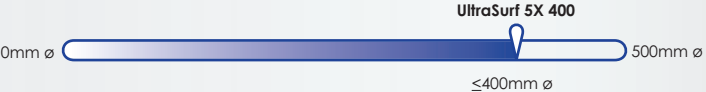
- Optical pen for measuring single surface to 0.3 um PV
- UltraSurf Software for analyzing measurements

Optional Features:

- Optical pen for dual-surface scanning
- Extended Z-Axis Travel to 600mm

Planos	Spheres	Aspheres	Cylinders Acylinders	Prisms	Freeforms
●	●	●	●	●	●

Sphere & asphere part size limit



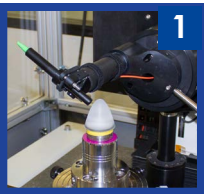
Typical Asphere Measurement Times

Ø50 mm 5 mm sag	Ø100 mm 10 mm sag	Ø150 mm 15 mm sag	Ø200 mm 20 mm sag
5 min	10 min	15 min	20 min
245,000 data points	600,000 data points	1,150,000 data points	1,300,000 data points

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 4X 300

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

UltraSurf 5X 400

In addition to having all the capabilities of the UltraSurf 4X 300, efficiently measure freeform surfaces with 5 axes of computer-controlled motion.

Specifications*

	UltraSurf 4X 300	UltraSurf 5X 400
Travels X - Axis Travel Y - Axis Travel Z - Axis Travel B - Axis Travel C - Axis Travel	300 mm (11.8") 6 mm (0.24") 140 mm (5.5") +/- 120° 360° Continuous	400 mm (15.7") 200 mm (7.87") 200 mm (7.87") (600 mm optional) +/- 120° 360° Continuous
Resolution Linear Rotary	5 nm .05 arc-sec	5 nm .05 arc-sec
Maximum Velocity Linear Rotary Max Scanning Speed**	Up to 20 mm/sec 66 RPM 1,000 Hz	Up to 20 mm/sec 22 RPM 1,000 Hz

* Specifications subject to change. Contact OptiPro for the latest specifications.

** 1,000 Hz with appropriate probe configuration

Unparalleled Dedication to Customer Success

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Developing Partnerships

Service

Reinforcing Relationships

Support

Ensuring Excellence

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