



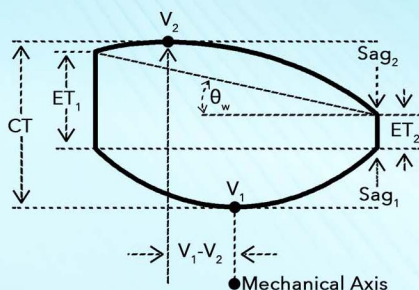
QuickPRO-CUBE™ Mini

High-Speed, dual-surface, geometry characterization of single or in-tray optical components

By integrating a pair of single-point, non-contact, nanometer-resolution chromatic confocal sensors with high-speed, nanometer-encoded X/Y/Z coordinated motion, the QuickPRO-CUBE™ captures front, back and datum surface 3D point cloud topography for the geometric characterization of single lenses or micro lenses in trays. The form invariant motion architecture permits measurement of both rotationally symmetric and more complex non-axially symmetric or freeform shapes to a maximum measurement diameter of 50mm (up to 70mm OD). The total measurement time is from 30sec to 60sec per surface per lens, depending on the lens diameter and 3D point cloud sampling density.

Measured geometric parameters include:

- Front-to-Back surface Vertex Offset relative to defined centration datum
- Front-to-Back surface Wedge Angle relative to defined tilt datum
- Front-to-Back Total Thickness variation (TTV)
- Front and Back surface Sag/Form error

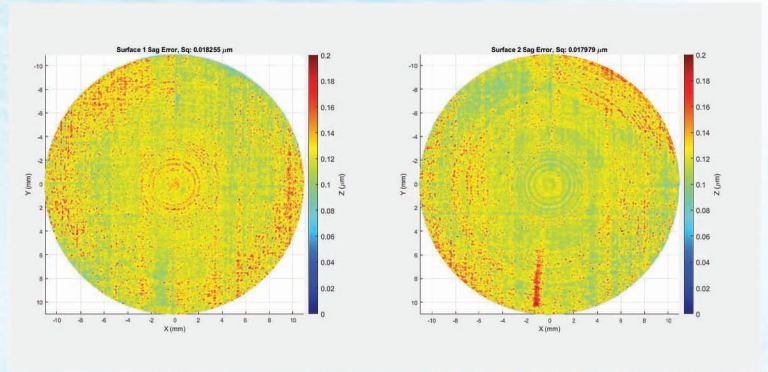
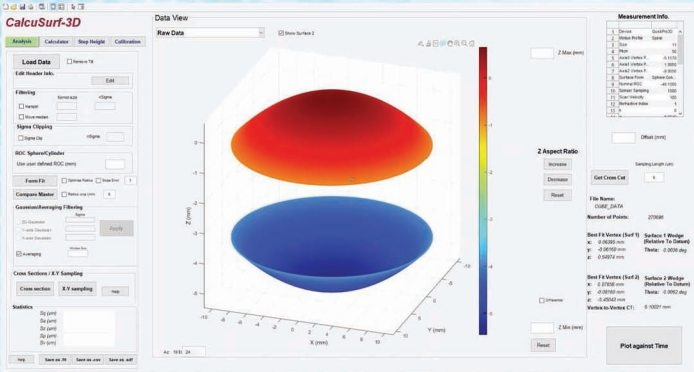


Geometric Parameters:
Vertex-to-Vertex Offset (V_1-V_2)
Wedge Angle (θ_w)
Center Thickness (CT)
Edge Thickness Variation (ET_1-ET_2)
Radius of Curvature (R_1 & R_2)
Sag (Sag_1 & Sag_2)



APPLICATIONS:

The CUBE is specifically designed for factory-floor QA of polished, molded, or diamond turned optical components, including optically opaque infrared materials and metals. An added advantage is the ability to measure multiple smaller lenses in-tray or lens arrays during a single measurement sequence.



SYSTEM CHARACTERISTICS:

- Compact, bench-top unit with environmental enclosure
- Dual single-point, non-contact, visible-light, chromatic confocal sensors with 8kHz combined measuring rate
- Vibration insensitive and dimensionally stable Invar metrology frame
- Nanometer encoded X/Y/Z coordinated motion with magnetic linear motors and cross roller bearings for fast raster or spiral scanning over 50mm (X), 50mm (Y), 50mm (Z)
- Self-centering fixture with precision quick connect for fast load/unload
- Fixtures for both single optical components (up to 70mm OD) and micro-lens trays
- User-friendly QuickPRO™ instrument control and data acquisition software for sensor optimization, auto-centering, data capture and coordinated motion sequencing
- CalcuSurf-3D™ view and analyze software for multi-surface 3D point cloud data

SYSTEM			
Dimensions (L : W : H)	500 mm x 500 mm x 500 mm		
Weight	Approx. 30 kg		
System Controller	Includes motion control, sensor control, power supplies, ethernet interface to PC		
Power Requirements	110-220V AC, 50-60 Hz, 1 phase, 2 amps (220V), 5 amps (110V)		
MOTION			
Stage Travel (X : Y : Z)	50 mm x 50 mm x 50 mm		
Encoder Resolution (X : Y : Z)	5 nm x 5 nm x 1 nm		
Drive Type	Magnetic linear motor		
Bearing type	Cross roller bearing		
Flatness	Approx. 1 µm/50 mm		
Max. Sample Size	70 mm OD		
Load Capacity	2 kg		
SENSORS			
Technique	Chromatic Confocal x2		
Applications	Distance, Centration, Wedge, Sag, Thickness		
Sampling	Point: up to 4,000 points/sec/sensor		
Available Probes	0.2 mm	0.4 mm	1 mm
Lateral Resolution	1.5 µm	2 µm	4 µm
Working Distance	5 mm	15 mm	37 mm
Axial Resolution	10 nm	10 nm	150 nm
Axial Accuracy	50 nm	50 nm	500 nm
Maximum Slope	± 45°	±45°	±20°
MEASUREMENTS			
Vertex Decenter (S1 relative to S2)*	≤ 2 micron		
Wedge Angle (S1 relative to S2)*	≤ 5 arcsec		
Sag Error (S1 & S2)* up to 45 deg	≤ 0.5 micron		
Total Thickness Variation (S1 - S2)	≤ 1 micron		

*Dependent on sample quality and 3D point cloud density