

Versatile vertically configured optical workstation provides high performance semi automated production metrology of aspheric surface form and radius of curvature of spherical optics.

SYSTEM	
Measurement Capability	Surface form of aspherical, spherical and flat optics, and semi automated radius of curvature of spherical parts
Measurement Technique	Laser based, three-dimensional, mechanical phase-shifting interferometry combined with heterodyne displacement interferometry
Measurement Hardware	VeriFire ATZ™ laser Fizeau interferometer and a displacement measuring interferometer
Test Beam Diameter	4 inch (102 mm) or 6 inch (152 mm)
Orientation	Downward-looking configuration
Z-Axis Travel	850 mm
Zoom Range	Encoded; 1:5X
Computer and Software	High-performance Dell PC, ZYGO MetroPro™ software with proprietary asphere metrology algorithms and Microsoft Excel

ASPHERIC MEASUREMENT PERFORMANCE ⁽¹⁾	
Alignment	Semi-automated computer alignment
Simple Repeatability ^(2,3)	≤ 1 nm ($\lambda/600$) RMS
Surface Measurement Repeatability ^(2,4)	≤ 5 nm ($\lambda/125$) RMS
Height Resolution	0.08 nm
Cycle Time ⁽⁵⁾	2 - 8 minutes (typical)

LASERS	
Type	High power stabilized HeNe, Class IIIa
Wavelength	633 nm
Frequency Stabilization	< 0.0001 nm

PHYSICAL CHARACTERISTICS	
Dimensions (HWD)	4 inch: 239 x 172 x 150 cm 6 inch: 262 x 172 x 150 cm
Weight	< 650 kg

UTILITY REQUIREMENTS	
Power	100 to 240 VAC, 50/60 Hz
Compressed Air	80 psi (5.5 bar); dry and filtered source (for integrated vibration isolation system)

OPERATIONAL ENVIRONMENT ⁽⁶⁾	
Temperature	15 to 30°C
Rate of Change	< 1° C per 15 min
Vibration Isolation	Integrated passive isolation Dampens vibration frequencies 1 Hz - 120 Hz



TEST PART CHARACTERISTICS	
Material	Various including glass, metals, ceramics and plastics
Aspheric Shape ⁽⁷⁾	Axially symmetric concave or convex shape with specular surface and a measurable apex
Departure from asphere design	Up to 10 μ m
Departure from vertex sphere R0	Approximately 800 μ m
Part Diameter ⁽⁸⁾	1 mm to 130 mm
Part Weight	≤ 5 kg
Reflectivity	0.1% to 100% (based on transmission element)

- NOTATIONS**
- Performance qualified with stable temperature set point between 20-23°C.
 - Performance dependent on surface slope and departure from design.
 - 2 σ RMS of 30 measurements using VFA aspheric artifact, PN 0220-7269-01.
 - Difference of a single measurement from the average of 30 measurements. RMS mean + 2 σ .
 - Total Average Cycle Time (TACT) estimate for a 3D map with ~700,000 data points. Includes alignment, acquisition and analysis, and is dependent on the number of measured zones.
 - These parameters outline the conditions under which the system can operate.
 - VeriFire Asphere calculator (OMP-0525) predicts part measurability.
 - Range depends on transmission sphere selection and part specifications.



Specifications subject to change without prior notice.