

Fizeau interferometer with patented ring of fire artifact suppression for high performance true on-axis common path surface form metrology.

SYSTEM OVERVIEW

Measurement Capability	Measures surface form of reflective materials and optics, and transmitted wavefront of transparent optics
Measurement Technique	Mechanical phase-shifting interferometry (PSI)
Alignment System	Quick Fringe Acquisition System (QFAS) with twin spot reticle
Test Beam Diameter	4 inch (102 mm) or 6 inch (152 mm)
Alignment FOV	4 inch: ±3 degrees 6 inch: ±2 degrees
Optical Centerline	4.25 in. (108 mm)
Laser Source	High power stabilized HeNe, Class IIIa
Wavelength	633 nm
Frequency Stabilization	< 0.0001 nm
Coherence Length	> 100 m
Camera Resolution	1,000 x 1,000 pixels
Camera Frame Rate	43 Hz
Acquisition Time	302 ms
Digitization	8 bits
Magnification	1-5x motorized, encoded zoom
Polarization	Nominally circular (1.2:1 or better)
Pupil Focus Range	4 inch: ±2.5 m 6 inch: ±5.5 m
Computer and Software	High-performance Dell PC, Windows 7 64-bit, MetroPro™9 and Mx™ software
Mounting Configuration	Horizontal or vertical
Accessories	See the ZYGO <i>Laser Interferometer Accessory Guide, OMP-0463</i>
Physical Envelope (LWH)	4 inch: 69 x 31 x 34 cm (27.3 x 12.1 x 13.4 in.) 6 inch: 92 x 31 x 34 cm (36.4 x 12.1 x 13.4 in.)
Weight	4 inch: ≤ 85 lb (38 kg) 6 inch: ≤ 100 lb (45 kg)
Power	100 to 240 VAC, 50/60 Hz

OPERATIONAL ENVIRONMENT⁽¹⁾

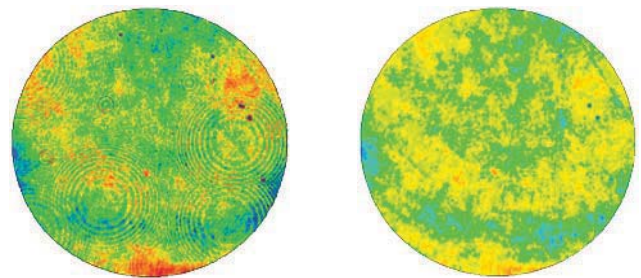
Temperature	15 to 30°C (59 to 86°F)
Rate of Temp. Change	<1.0°C per 15 min
Humidity	5 to 95% relative, non-condensing
Vibration Isolation	A passive isolation system is recommended with PSI acquisition



PERFORMANCE⁽²⁾

RMS Simple Repeatability ³	< 0.06 nm, λ/10,000 (2σ)
RMS Wavefront Repeatability ⁴	< 0.35 nm, λ/1,800 (mean + 2σ)
Peak Pixel Deviation ⁵	< 0.5 nm, λ/1,200 (99.5 th %)

Comparison with and without artifact suppression⁽⁶⁾



Point Source Illumination

Ring Source Illumination

Notations

- These parameters outline the conditions under which the system can operate; they do not represent the environmental stability required to meet specified performance.
- Performance qualified with stable temperature set point between 20-23°C.
- RMS Simple Repeatability is defined by 2X the standard deviation of the RMS for 36 sequential measurements (16 averages) of a short 4 inch plano cavity.
- RMS Wavefront Repeatability is defined by the mean RMS difference plus 2X the standard deviation for the differential between all even numbered measurements and a synthetic reference (defined as the average of all odd numbered measurements); 36 sequential measurements (16 averages) form the basis for calculation.
- Peak Pixel Deviation is defined by the 99.5th percentile of the pixel-wise standard deviation map for 36 sequential measurements (16 averages); this result measures time varying behavior (or Type A uncertainties).
- Measurement of identical cavity switching between point and ring source illumination. Artifacts intentionally added into interferometer to highlight artifact suppression capability.



Specifications subject to change without prior notice.

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