

Fizeau high definition interferometer with patented QPSI acquisition for true on-axis common path metrology of optical surfaces or wavefront in the presence of vibration.

SYSTEM OVERVIEW

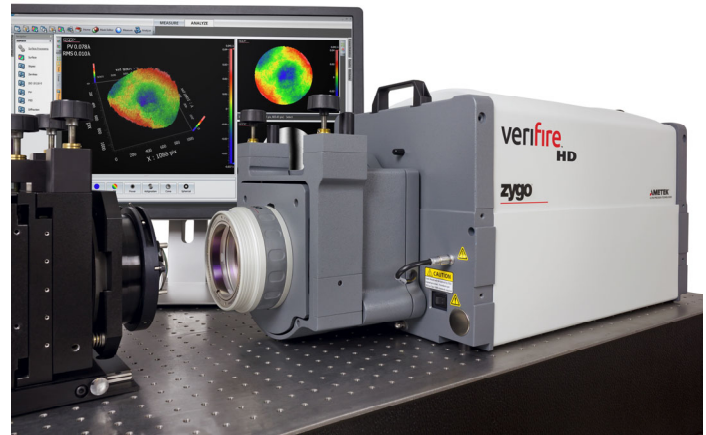
Measurement Capability	Measures surface form of reflective materials and optics, and transmitted wavefront of transparent optics
Measurement Technique	QPSI mechanical phase-shifting and traditional mechanical phase-shifting interferometry (PSI)
Alignment System	Quick Fringe Acquisition System (QFAS) 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)
5.3 MP Camera Details	Resolution: 2304 x 2304 pixels Frame Rate: 210 Hz Digitization: 8 bit Shutter Time: 200 µs – 10 ms
1.4 MP Camera Details (Option)	Resolution: 1200 x 1200 /600 x 600 pixels Frame Rate: 50 Hz /82 Hz Digitization: 10 bit Shutter Time: > 12 µs
Acquisition Time	130 - 300 ms
Magnification	1X Fixed (1-50X digital); 3 Position Zoom Turret- 1X/1.7X/3X (requires 1.4 MP camera option)
Polarization	Nominally circular (1.2:1 or better)
Pupil Focus Range	4 inch: ±2 m 6 inch: ±4.5 m
Computer and Software	High-performance Dell PC, Windows 64-bit, Mx™ software
Mounting Configuration	Horizontal or vertical
Wireless Remote	iOS based touchscreen Smart Remote
Additional Options	CARS (Coherent Artifact Suppression)- minimizes artifacts from wavefront shearing, speckle or mottle
Accessories	See the ZYGO Laser Interferometer Accessory Guide, OMP-0463
Physical Envelope (LWH)	69 x 31 x 34 cm (27.3 x 12.1 x 13.4 in.)
Weight	≤ 85 lb (38 kg)
Warranty	3 years laser source, 2 years system

LASER DETAILS

Laser Source	High power stabilized HeNe
Class	IIIa (meets 3R ANSI requirements)
Wavelength	633 nm
Frequency Stabilization	< 0.0001 nm
Output Power	<5 mW
Coherence Length	> 100 m

UTILITY REQUIREMENTS

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



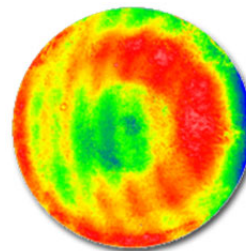
OPERATIONAL ENVIRONMENT⁽¹⁾

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	Not required with QPSI; recommended with PSI acquisition

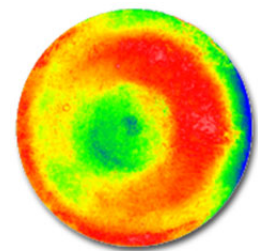
PERFORMANCE⁽²⁾

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 of acquisitions in vibrating cavity



PSI 13 bucket algorithm



QPSI 5 ms shutter speed

Notations

1. These parameters outline the conditions under which the system can operate; they do not represent the environmental stability required to meet specified performance.
2. Performance qualified with stable temperature set point between 20-23°C.
3. 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.
4. 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.
5. 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).



Specifications subject to change without prior notice.