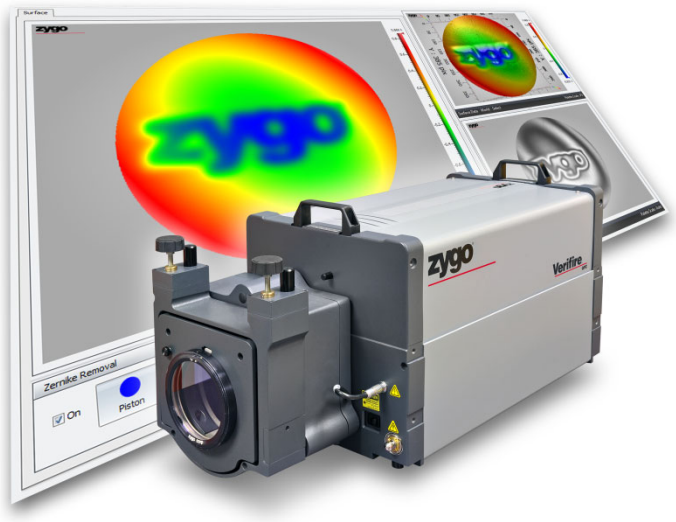
Verifire™ QPZ

Fizeau interferometer with patented QPSI acquisition for true on-axis common path surface form metrology 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 rapid 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)
Laser Source	High power stabilized HeNe, Class IIIa
Wavelength	633 nm
Frequency Stabilization	< 0.0001 nm
Coherence Length	> 100 m
Camera Resolution	640 x 480 pixels
Camera Frame Rate	210 Hz (PSI) 50 µs – 5 ms (QPSI)
Acquisition Time	62 ms (PSI); 143 ms (QPSI/30 frame)
Digitization	8 bits
Magnification	1-6x motorized
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 MetroPro X software[1]
Mounting Configuration	Horizontal or vertical
Accessories	See the ZYGO *Laser Interferometer Accessory Guide, OMP-0463*
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

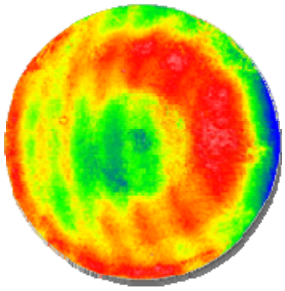
Operational Environment[2]

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	QPSI enables metrology in environments with vibrations of a magnitude of up to ~150 nm. A passive isolation system is recommended with PSI acquisition.

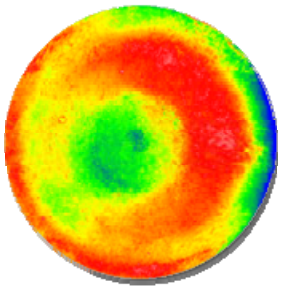
Performance

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 (99.5th %)

Comparison of acquisitions in vibrating cavity



PSI 13 bucket algorithm



QPSI 5 ms shutter speed

Notations

1 QPSI acquisition is only available on MetroPro X software.

2 These parameters outline the conditions under which the system can operate; they do not represent the environmental stability required to meet specified performance

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 notice

zygo®

Zygo Corporation
Laurel Brook Road
Middlefield, CT 06455

Phone: 860-347-8506
Email: inquire@zygo.com
Website: www.zygo.com

SS-0091 08/11