

VeriFire MST™ 633 nm

Specifications



SYSTEM

Measurement Technique	Laser based, three-dimensional, optical phase-shifting interferometry capable of simultaneous fringe pattern analysis using ZYGO's FTPSI™ (Fourier Transform Phase Shifting Interferometry) technology
Artifact Suppression	Ring of Fire™ technology
Aperture Size	4 in. (102 mm) or 6 in. (152 mm)
Mounting Options	Horizontal and Vertical, Upward and Downward-looking configurations
Optical Centerline	4.25 in. (108 mm)
Alignment System	Quick Fringe Acquisition System (QFAS) with twin spot reticle
Zoom Range	1X, 2X, 4X discrete zoom or 1X-6X continuous zoom
Alignment Field of View	4 inch: ±3 degrees
Pupil Focus Range	4 inch: -800 mm/ +1600 mm
Part Viewing	Additional fringe monitor
Computer	Dell PC with hard drive, CD-R/W, floppy drive, and flat panel monitor; printers optional
Software	ZYGO MetroPro software running on Microsoft® Windows XP Professional

PHYSICAL

Dimensions (H x W x D) interferometer only	4 inch: 15.1 x 27.3 x 12.1 in. (384 x 694 x 308 mm) 6 inch: 15.1 x 36.3 x 12.1 in. (384 x 992 x 308 mm)
Weight (approximate)	4 inch: 80 lb (36 kg) 6 inch: 90 lb (41 kg)

LASER

Type	Tunable external cavity solid state laser
Modulation Range	150 GHz
Nominal Wavelength	633 nm
Maximum Output Power	7 milliwatts
Output Power at Aperture	0.1 milliwatts (through 7 mm diameter)
Polarization	Nominally circular (1.2:1 or better)
Linewidth	12 MHz

PERFORMANCE

Repeatability of Three-Flat Test (1)	$\lambda/300$ (2 σ)
Repeatability of rms (2)	$\lambda/10,000$ (2 σ)
Spatial Sampling(3)	1K x 1K pixel camera
Surface Height Resolution	Better than $\lambda/8,000$
Data Acquisition & Processing Time(3)	0.5 sec. minimum (2-surface data, min. resolution) 30 sec. maximum (4-surface data, max resolution)
Digitization	8 bits

UTILITY REQUIREMENTS

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

ENVIRONMENTAL REQUIREMENTS

Temperature	15 to 30°C (59 to 86°F)
Rate of Temp. Change	<1.0°C per 15 minutes
Humidity	5 to 95% relative, noncondensing
Vibration Isolation	Required for vibration frequencies in the range of 1 Hz to 120 Hz
Shipping Temp. Range	-40 to +65°C (-40 to +149°)

PART SETUP

Standard	Two-surface
MetroPro	Three-surface
Setups ⁽⁴⁾	Four-surface
Minimum Test	Optical thickness: 6 mm (min.)
Part Optical	Physical thickness: 4 mm (for n=1.5)
Thickness ⁽⁵⁾	
Allowable Optical	6 millimeter to 5 meters (one way)
Distance Range ⁽⁶⁾	

ZYGO offers a wide variety of accessories, including transmission and reference flats, transmission and reference spheres, part mounting options, large aperture components, and radius of curvature measurement options. For information on these accessories, refer to the GPI and VeriFire Accessories booklet, OMP-0463.

NOTATIONS

- 1 Repeatability of the three-flat test is a practical example of the in-use performance of this instrument. Flat 'A' is tested six times using the three-flat test in the 2-surface configuration, using the six available pairs of flats B, C, D, and E to complete six three-flat combinations, with 16 phase averages per data set. The specification represents the 2σ value from these six three-flat tests. System accuracy for relative testing is dependent on the quality of the reference optic.
- 2 Repeatability of the quoted statistic is for 100 measurements of the same cavity using ZYGO's 2-surface testing setup, with 16 phase averages per data set. The specification represents the 2σ value of each statistic.
- 3 For higher resolution needs, please contact your local Zygo Corporation sales representative.
- 4 For measurements of cavities with more than four parallel surfaces using Multiple Surface Transform techniques, contact your local Zygo Corporation sales representative.
- 5 This is minimum *optical* thickness. Minimum physical thickness is dependent on the index of refraction of the material. For example, the minimum physical thickness for a parallel plate with an index of 1.5 would be 4 mm. For measurement of thinner parts using Multiple Surface Transform techniques, contact your local Zygo Corporation sales representative.
- 6 This range defines the minimum and maximum distances allowed between any pair of parallel surfaces in the test setup. For requirements outside this range, contact your local Zygo Corporation sales representative.

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The leading supplier of scientific and industrial lasers, optical systems and associated accessories, fibre optic components and instrumentation, and machine vision products.

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