SURFACE FORM | TRANSMITTED WAVEFRONT | HOMOGENEITY | OPTICAL THICKNESS

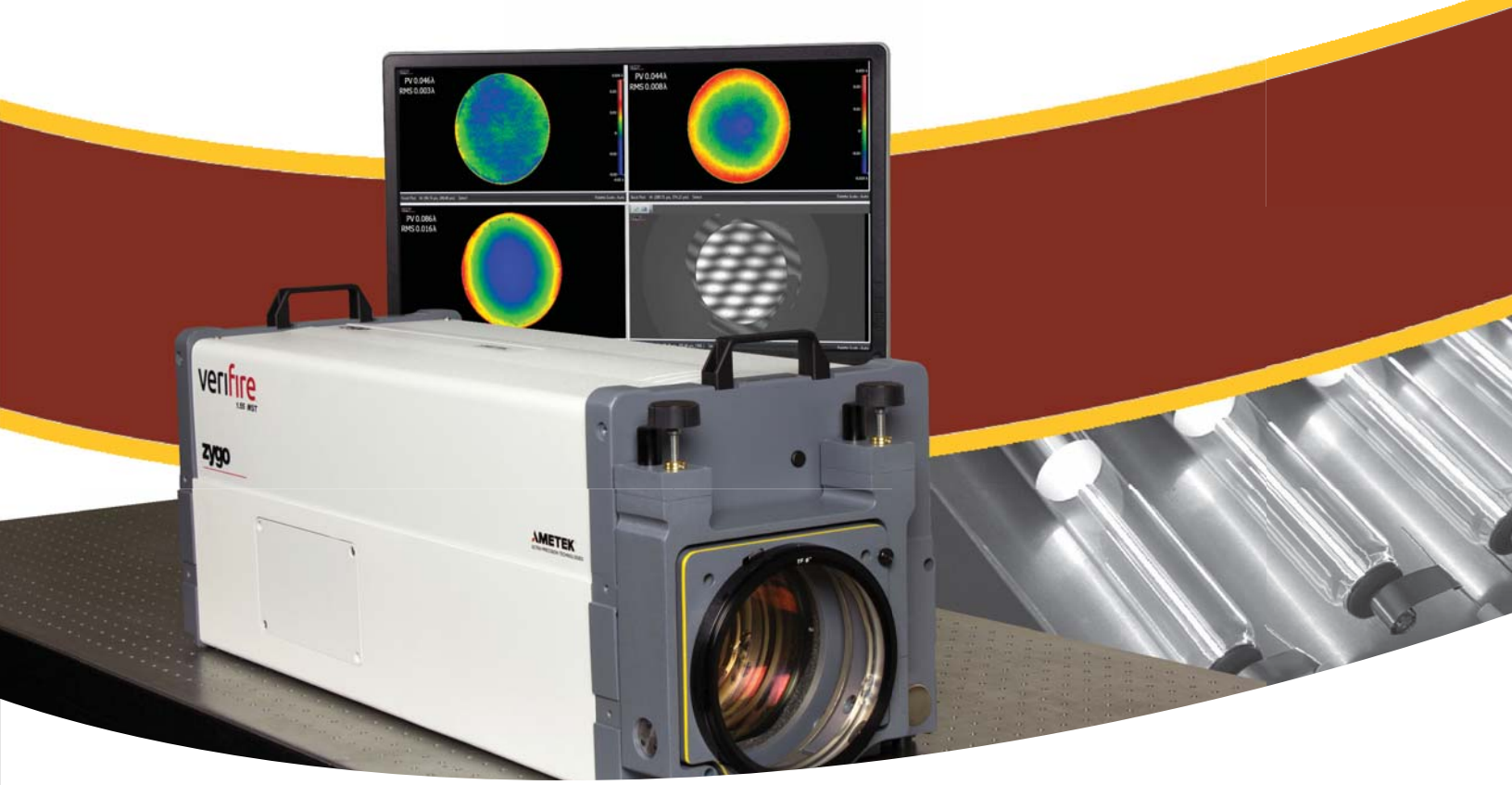
Verifire™ MST

LASER INTERFEROMETERS

Simultaneous Measurement of Multiple Optical Surfaces

zygo®

AMETEK®
ULTRA PRECISION TECHNOLOGIES



PRECISE OPTICAL MEASUREMENT AND TESTING OF FRONT & BACK SURFACE, THICKNESS & HOMOGENEITY IN SECONDS.

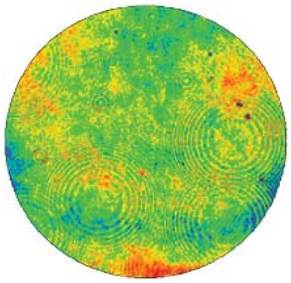
Precision metrology and testing of optical components, assemblies and systems often require the measurement of plane parallel surfaces and/or multiple surfaces simultaneously. This can present challenges for conventional interferometers that employ classical Phase Shift Interferometry (PSI) methods due to the many reflected signals from the multiple surfaces under test. To address these challenges, ZYGO has developed VeriFire MST (Multiple Surface Transform) Fizeau Laser Interferometer.

Combining wavelength-shifting interferometry with ZYGO's patented Fourier Transform Phase Shifting Interferometry (FTPSI) data acquisition technology, the VeriFire MST enables the precise and error-free measurements of two-surface, three- and even four-surface cavities, and beyond. Looking to measure a system with even more surfaces? ZYGO's Multiple Surface Investigation acquisition scans the entire cavity and allows for individual analysis of any surface by selecting the peak of interest.

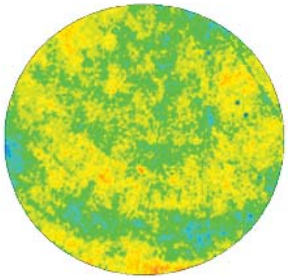
Measurement and imaging artifacts are naturally suppressed using ZYGO's patented FTPSI and Ring Source Illumination, eliminating the need for an extended source, resulting in greater image detail and feature resolution. Additionally, all surfaces, or only the surfaces of interest, are available for visual display and characterization within ZYGO's propriety and industry standard Mx™ software.

Innovative and precise solution for simultaneous measurement of parallel plate surfaces, thickness variation, and homogeneity – requiring no specialized part set-up or surface preparation.

Comparison with or without artifact suppression



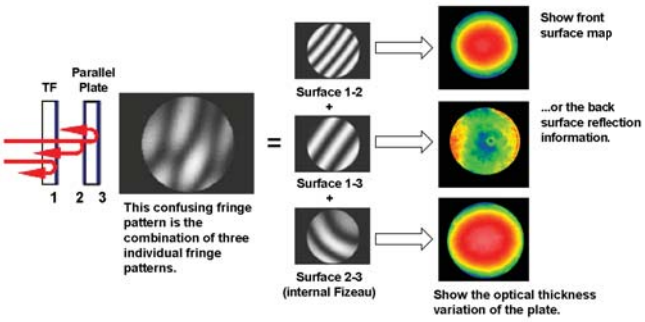
Point Source Illumination



Ring Source Illumination

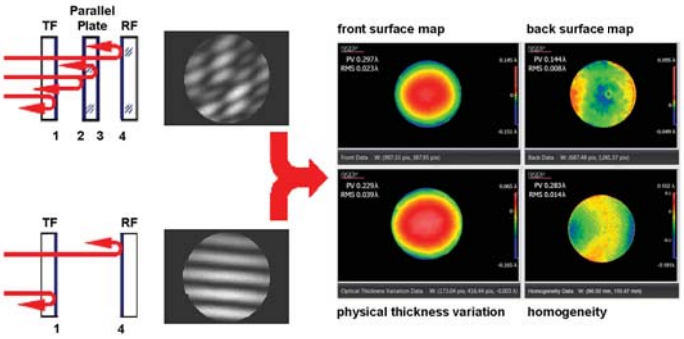
ARTIFACT SUPPRESSION

The core design of the Verifire MST laser interferometer is based on a true on-axis, common path Fizeau interferometer configuration with patented FTPSI technology and Ring Source Illumination (aka "Ring of Fire"), which enables superior artifact suppression for high resolution imaging and precise surface form metrology and material characterization.



THREE SURFACE METROLOGY

Plane parallel plates can now be measured for the flatness of the front and back surface (1) plus the optical thickness of the plate. In one data acquisition, you can measure the front surface map, optical thickness variation, and the back-surface approximation using optical thickness information.



FOUR SURFACE METROLOGY

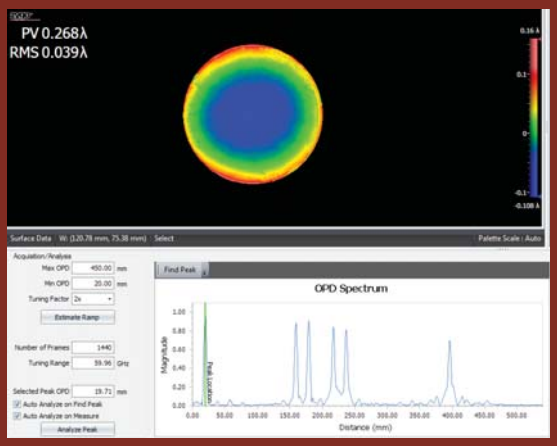
This technique enables the measurement of the following with only two data acquisitions (and no part coating or preparations):

- Front and Back surface maps
- Physical Thickness Variation (including Wedge)
- Optical Thickness Variation
- Refractive Index Variation:
- Nonlinear Homogeneity
- Linear Homogeneity

POWERFUL SOFTWARE SUITE

The Verifire™ MST laser interferometer is powered by our Mx™ data acquisition and analysis software package, with hundreds of reportable parameters. Surface characterization and measurement applications include:

- Transmitted Wavefront
- Homogeneity
- Peak-to-Valley; PVr
- PSD, PSF, MTF Analysis
- TTV
- Multi Surface Investigation
- Geometry Calculator
- Zernike and Legendre Fits



AVAILABLE WAVELENGTHS

- 633 nm
- 1.053 µm
- 1.55 µm

LEADING HARDWARE OPTIONS AND REFERENCE OPTICS

Precision metrology depends on high quality reference optics. That's why we design, manufacture and qualify our transmission flats and spheres to provide you with optimum performance from your laser interferometer. Our certified manufacturing and metrology processes are based on NIST approved calibration techniques, ensuring that all ZYGO reference optics meet or exceed the specified performance.

Hardware options include:

- Encoded Zoom and Focus
- Switchable Polarization

zygo®

ZYGO CORPORATION
21 Laurel Brook Road, Middlefield, CT 06455
+1 860.347.8506 | inquire@zygo.com

AMETEK®
ULTRA PRECISION TECHNOLOGIES

Offering the broadest and most reliable optical metrology solutions in the industry for more than 45 years! See why ZYGO is the most trusted brand of laser interferometer today.

Metrology without compromise.

SB-0357 07/17

www.zygo.com