FizCam™ 2000

High Performance Dynamic Fizeau Interferometer

Breakthrough Technology

The FizCam 2000 dynamic Fizeau interferometer is a new on-axis design providing high accuracy measurement of optical grade surfaces with almost complete insensitivity to vibration and air turbulence. Featuring a short coherence length source, the system enables measurement of parallel surfaces without the need for extraneous coatings to control multiple interference fringes.

The FizCam 2000 eliminates bulky and slow phase shifters by incorporating patented technology using a single camera, high-speed optical phase sensor that makes a wavefront measurement in as little as 30 microseconds. Because acquisition time is so short, the FizCam can be used under almost any conditions, even for measuring moving parts, without additional vibration isolation.

The short coherence length source allows for measurement of close (< 0.3 millimeters) parallel glass surfaces. Other applications include remote cavity measurements, testing of index homogeneity, measurement of thin optics, and environmental chamber tests.

Complete System

The FizCam 2000 is a turnkey instrument that includes the interferometer mainframe, 4Sight™, advanced wavefront analysis software, and a high-speed computer system with an LCD monitor, keyboard, and mouse. In addition, the FizCam 2000 offers true 5X motorized optical zoom imaging, and a motorized hand controller with remote control of Focus and Zoom.

FizCam 2000 4-inch

Industry Leading Analysis, Standard

4Sight wavefront analysis software features a user-friendly interface with unmatched simplicity, analysis features and graphical displays. The Measurement Console display aids alignment and execution of single, averaged, burst or continuous data acquisition. The Measurement Flow interface lets you visualize the entire measurement data flow, from raw acquisition through masking, reference subtraction, terms removal, etc. The unique Measurement Stack enables complex data manipulation and comparison. Zernike, Seidel, geometric and diffraction analyses are easy to perform. Comprehensive data sharing capabilities let you read, write, save and print from most file types, including MetroPro IDL®, MatLab®, Opticode®,Vision®, HDF5® and CodeV®. Generating phase movies to characterize deforming surfaces and moving parts is simple and straightforward.

Accessories

The FizCam 2000 is compatible with most accessories from other manufacturers, so there is no need to replace existing mounts and optics. When you need additional components 4D Technology offers precision components to cover almost any need.

FEATURES

- Vibration Insensitive Dynamic Operation
- Remote Operation Hand Controller
- 5X Optical Zoom Imaging
- Compatible with Standard Fizeau Optics
- 1000 x 1000 Pixel Camera Standard

APPLICATIONS

- Measurement of Thin Transparent Optics
- Isolate/Measure Surfaces within an Optical Assembly
- Measure Remote Cavity/Optic Thickness
- Test Flats, Spheres, Prisms, etc.
- Optical Testing of Moving Parts
- Vacuum and Environmental Chamber Testing

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FizCam™ 2000

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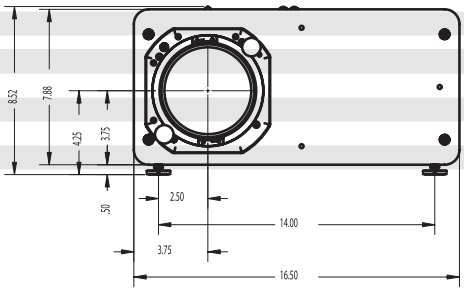
Specifications

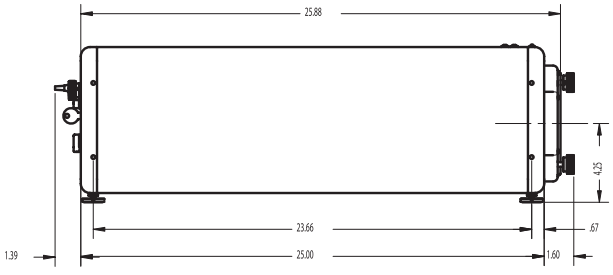
Configuration	**Model 2000**
Description	Turnkey vibration insensitive dynamic Fizeau interferometer system
Acquisition Mode	Instantaneous Phase Shifting with pixelated phase sensor
Laser Source	658 nm, short coherence length, approximately 300 µm
Output Beam	4 in collimated standard; 6 in and 12 in optional
Reference Optics	Bayonet mounted, 10.8 cm (4.25 in) optical axis (4 in model)
Optical System	Fizeau with coherent imaging
Zoom	Motorized, 5X with 1Kx1K, optional zoom encoder
Pupil Focus Range	Motorized, ±2 m, at all zoom settings
Alignment	Variable gain, twin spot
Camera	1K x 1K pixels, 10-bit standard
	Exposure: 250 µsec typical
Hand Controller	Remote control of focus, zoom
Data Array	Selectable: full, half, quarter resolution
Path Matching	Motorized, Automated, 0 to 400 mm range standard
	Optional cavity length to 2 m
Computer System	Minimum Dual Core 2.4 GHz processor 4 GB RAM, 320 GB hard drive
	CDRW, DVDRW, 22 in LCD monitor, keyboard, mouse
Operating System	Windows XP®
System Software	4Sight™ Analysis Software, with User Manual
	Instantaneous Phase Shifting data acquisition
	Reference generation, subtraction, data averaging, masking
	2D and 3D surface maps
	Zernike / Seidel / Slope / Geometric / Fourier Analysis
	Fiducial aided data set mapping
	HDF4 / HDF5 data format standard, others supported
	Absolute sphere, prism & corner cube analysis
	Multiple sub-aperture analysis
	Upgrades – free during warranty period
Physical Envelope	< 72 x 42 x 21.9 cm (28 x 16.5 x 8.6 in) 4 in model
Weight	< 40 Kg (88.2 lbs) 4 in model
Power consumption	< 750 Watts
Temperature Range	Operational: 60–80° F, non-condensing
	Storage: 30–100° F, non-condensing
Warranty	One Year, limited, on-site system installation and operator training
Options	
Special Analysis	Modal (Vibration) Analysis
System Performance	
Acquisition Rate	> 14 frames/sec display
	> 25 frames/sec burst acquisition
Sample Reflectivity	1 to 100%
RMS Repeatability	< 0.001 wave*
Uncalibrated Accuracy	< λ/20 transmission flats (typical with reference subtract)

***One sigma for RMS of 10 data sets of calibration mirror, each data set being an average of 16 measurements.**

All specifications subject to change without notice.

4 in model dimensions





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