

# FizCam™ 2000

4D Technology

## 12-Inch Aperture 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 large flats, including those with 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 measurement and measurement of thin optics.

### 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 6X motorized optical zoom imaging, and a motorized hand controller with remote control of Focus and Zoom.

### 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 available with 12-inch mounts for reference and test flats.



FizCam 2000 12-inch

## FEATURES

- Vibration Insensitive Dynamic Operation
- Remote Operation Hand Controller
- 6X Optical Zoom Imaging
- 1000 x 1000 Pixel Camera Standard

## APPLICATIONS

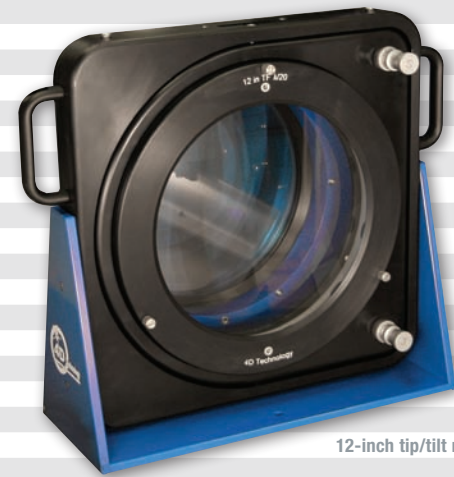
- Measurement of Large Flats, Including Thin Transparent Optics or Plane Parallel Surfaces
- Isolate/Measure Surfaces within an Optical Assembly
- Measure Remote Cavity/Optic Thickness
- Optical Testing of Moving Parts

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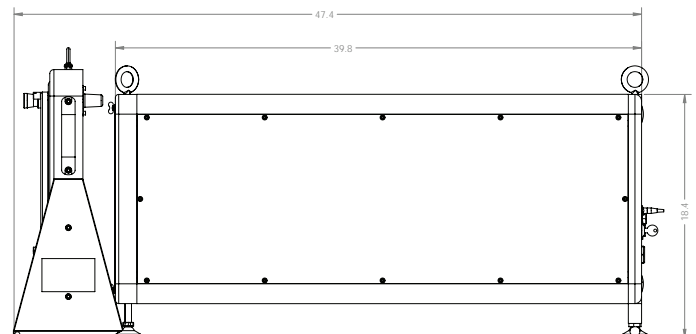
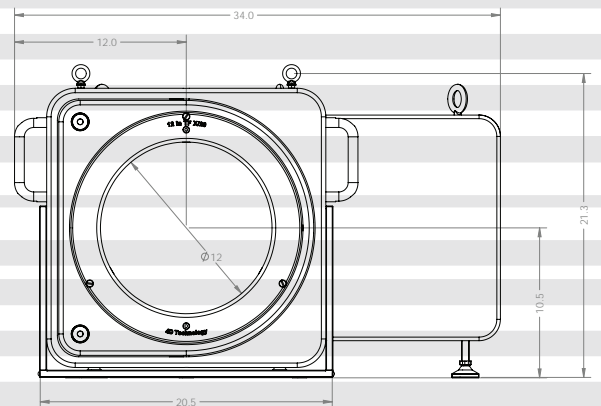
## 12-Inch Aperture Model Specifications

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 $\mu\text{m}$
Output Beam	12 in
Reference Optics	Bayonet mounted, 26.7 cm (10.5 in) optical axis
Optical System	Fizeau with coherent imaging
Zoom	Motorized, 6X with 1Kx1K, optional zoom encoder
Pupil Focus Range	Motorized, $\pm 5$ m, at all zoom settings
Alignment	Twin spot
Camera	1K x 1K pixels, 10-bit standard Exposure: 250 $\mu\text{sec}$ 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	101.1 x 78.5 x 52.2 cm (39.8 x 30.9 x 20.6 in)
Weight	136 kg (300 lbs) instrument
Power consumption	< 750 Watts
Temperature Range	Operational: 60–80° F, non-condensing Storage: 30–100° F, non-condensing
<b>Warranty</b>	One Year, limited, on-site system installation and operator training
<b>Options</b>	
Special Analysis	Modal (Vibration) Analysis
<b>System Performance</b>	
Acquisition Rate	> 14 frames/sec display > 25 frames/sec burst acquisition
Sample Reflectivity	1 to 100%*
RMS Repeatability	< 0.001 wave**
Uncalibrated Accuracy	Dependent on reference optic quality; < $\lambda/20$ typical



12-inch tip/tilt mount

12 in model dimensions



\* Higher reflectivity may require attenuation.

\*\* 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.

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