

MarSurf FI 2100 PS

DYNAMIC FIZEAU INTERFEROMETER



High Performing, Dynamic Fizeau Interferometer

High Accuracy Measurement Capabilities with Unsurpassed Instrument ITF

APPLICATIONS

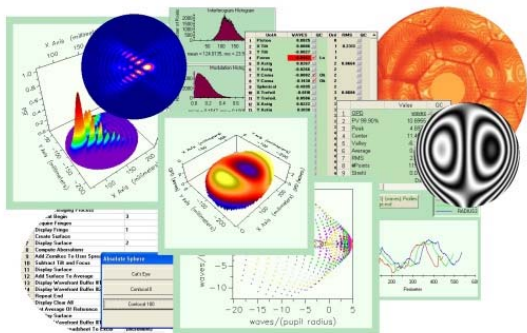
- Measurement of flat, concave or convex surfaces
- Prism, corner cube, wedge angle & homogeneity measurements
- Measurement of optical, machined, ceramic, and wafer/disk surfaces
- Transmitted wavefront analysis of optical systems & components
- Production and shop floor

MAIN FEATURES & BENEFITS

- Diffraction-limited optical design
- 2k x 2k spatial resolution
- Superb ITF guarantees unsurpassed measurement accuracy for low and mid-spatial frequency content
- Patent pending PMR for “Dynamic” capability in harsh environments
- Compatible with all industry standard 4” (100mm) reference optics and accessories
- Workstations for flat and short to long radius of curvature measurements



The **MarSurf FI 2100 PS** interferometer provides non-contact measurement of flat or spherical surfaces along with transmitted wavefront measurements of optical components and assemblies. With its diffraction-limited optical design, high resolution camera, superb ITF, and Patent Pending Dynamic PMR, the **MarSurf FI 2100 PS** provides unsurpassed measurement accuracies for low and mid-spatial frequency content, no matter the environment. The **MarSurf FI 2100 PS**, when integrated with ESDI’s world-renowned **IntelliWave™** acquisition and analysis software, is guaranteed to provide the end user with superior metrology capability.



IntelliWave™ Software Features

- Multiple options for acquisition and analysis
- Peak-to-Valley, RMS measurements, Strehl Ratio
- Zernike and Seidel analysis
- Diffraction analysis (PSF, MTF, Encircled Energy)
- Geometric analysis (Geometric Spot Diagrams, Encircled Energy)
- Automation and QC controls for production lines
- PSD filtering and averaging features for noisy data

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Specifications

SYSTEM

Test Beam	102 mm (4.0")
Zoom	1X to 4X (digital)
Focus	+/- 2.0 m (remote controlled)
Attenuation	Software controlled
Alignment	Simple two spot alignment
Alignment View	± 1.5 degrees
Part Viewing	Live video on computer screen (dual monitor option)

PERFORMANCE¹

RMS Repeatability ²	< 1 Å
Calibrated Accuracy	λ/100
Height Resolution	λ/8000
Spatial Resolution	2k x 2k
Digitization	12 bits
Acquisition Time	300 ms
Averaging Modes	Intensity and Phase

LASER

Wavelength	632.8nm SLM HeNe (other wavelengths available)
Polarization	Circular
Coherence	>100 m

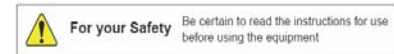
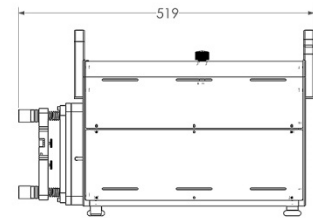
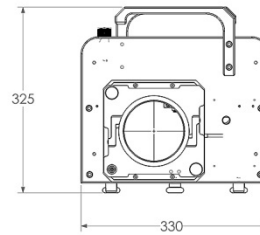
ELECTRICAL & MECHANICAL

Power	110/240 Volts, 50/60 Hz, <25 Watts
Dimensions	519 x 330 x 325 mm (20.4" x 13" x 12.8")
Weight	24 kg (52 lb)

ENVIRONMENTAL REQUIREMENTS³

Temperature	15 to 30°C (59 to 86°F)
Rate of Temp. Change	<1.0°C per 15 min
Humidity	Relative 5% to 95%, no condensing
Vibration Isolation	Not Required for Dynamic Option

- 1) Vibration free environment with temp. change < 1°C/15 min. between 20-23°C, no thermals
- 2) 3 sigma of the rms for 128 data sets, each an average of 32 measurements
- 3) These parameters state conditions in which the system can operate; they do not represent the environmental stability required to meet performance.



Configurations

- Vertical and horizontal, operates in ANY orientation
- Dynamic or traditional Phase-Shifting
- Short and long radius of curvature options

Options

- Multiple wavelengths available

Accessories

- Full set of reference optics
- 150 mm (6"), 200mm (6") and 300mm (12") beam expanders and PMRs
- Compatible with all 4" industry standard reference optics

Computer Workstations

- High performance computer with IntelliWave™ software pre-installed
- All hardware interfaces pre-installed for complete MarSurf FI 2100 PS interferometer data acquisition

IntelliWave™ Software

- Multiple fringe unwrapping algorithms
- Multiple aberration polynomial sets for analysis
- Diffraction and geometric analysis
- Derivatives and Integrals
- Complex masking including unlimited mask groups
- Fiducials and image transformations
- Measurements: Wavefront, Wedge, Angle, Prisms, Two Sphere Test, Homogeneity

Reference Optics						
F/#	TS					TF
	0.75	1.5	3.3	7	11	
Diameter (mm)	130					126
Height (mm)	93	88	70	92.5	97	30
Weight (kg)	3	2.9	2.1	2	2	0.7
Radius of TS	47	120	299	665	1050	-
Accuracy	≤ λ/10					≤ λ/20

