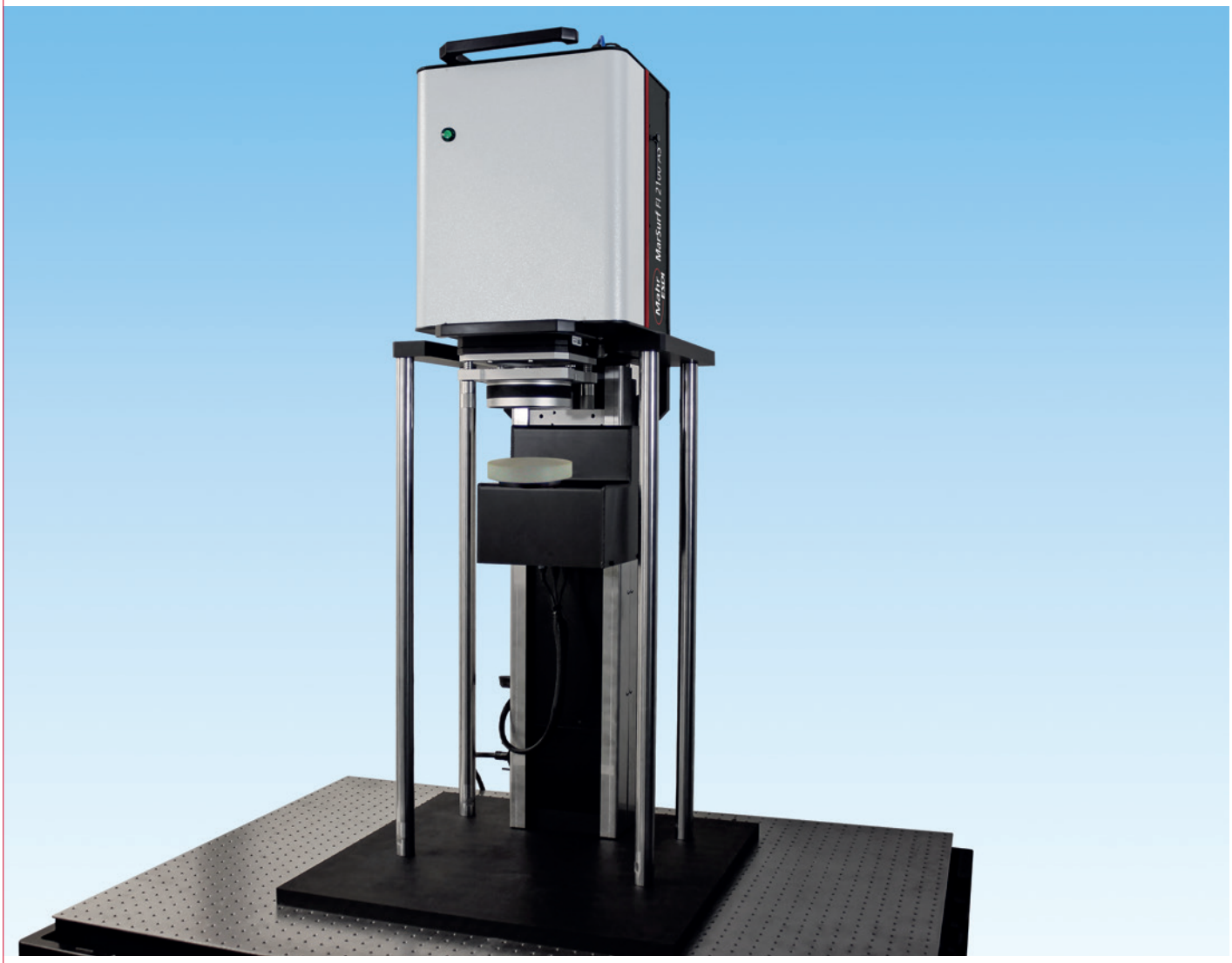
MarSurf



MarSurf FI 2100 AS
Dimetior™ AS
Nulling Fizeau Interferometer
with CGR Technology for Measuring Aspheric Surfaces

Mahr

EXACTLY

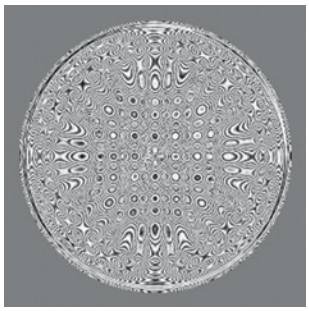
MarSurf FI 2100 AS

Mahr offers new measuring systems for optical industry

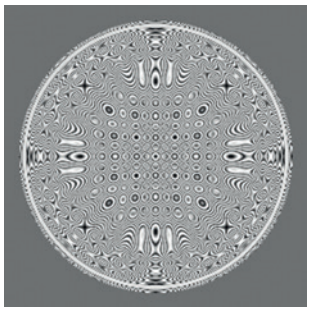
The MarSurf FI 2100 AS is the most technologically advanced member of Mahr's Fizeau interferometer family. The MarSurf FI 2100 AS is a high-speed, noncontact "nulling" Fizeau interferometer system capable of measuring aspheric, spherical & flat surfaces.

With a fully automated workstation and the capability to measure toric, biconic, and other axial asymmetric aspheric surfaces, the MarSurf FI 2100 AS is the new standard in aspheric metrology.

Surface Measurement

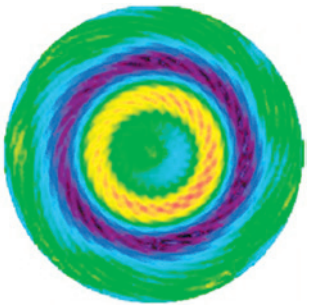


Measured Fringes



CGR

Moire Fringes



OPD (aberrations subtracted)

Features & Benefits

- Can measure Aspheres, Torics, Biconics, Off-Axis Paraboloids, Freeforms, and other surfaces without rotational symmetry
- No Null lenses, CGHs, axial scanning, or stitching required
- Options for Fully or Semi-Automated Workstations
- ≥ 1.5 mm of departure
- Highly flexible with a superior cost – performance benefit

MarSurf FI 2100 AS

The MarSurf FI 2100 AS Fizeau interferometer provides fast, high-resolution, noncontact characterization of not only aspheric surfaces but also spherical and flat surfaces. Ideal for production and process control applications, the MarSurf FI 2100 AS operates on the world-renowned IntelliWave™ 6.7 software platform.

The MarSurf FI 2100 AS with IntelliWave™ 6.7 provides ease of use, high efficiency, and the flexibility to handle multiple surface metrology applications at a significantly reduced cost. MarSurf FI 2100 AS incorporates an interferometric analysis technique called Sub-Nyquist Sampling (SNS). SNS overcomes the limitations of measuring large wavefront slopes. SNS is used in conjunction with traditional phase-shifting (PSI) and therefore the precision inherent to PSI is maintained.

Capable of analyzing ≥ five fringes per camera pixel, Mahr's technology allows for a significant increase in the range of slope measurements, or amount of aspheric departure, that can be measured by the interferometer.

This is all accomplished with no increase in the amount of required data and no need for special hardware such as null lenses or CGH.

MarSurf FI 2100 AS

Specifications

System

Output Aperture	100 mm (4.0")
Focus	Fixed
Intensity	Software controlled
Alignment	Simple two spot alignment
Alignment View	± 1.5 degrees
Viewing	Live video on computer screen

Performance[1]

RMS Repeatability[2]	λ/500
Height Resolution	λ/8000
Spatial Resolution	1k x 1k
Fringe Resolution	~2,500 fringes of tilt across the 100mm aperture
Digitization	12 bits
Acquisition Time	300ms
Averaging Modes	Intensity and Phase

Laser

Wavelength	633nm
Polarization	Circular
Coherence Length	≥100m

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	26 kg (58 lb)

Environmental Requirements[3]

Temperature	15 to 30 °C (59 to 86 °F)
Rate of Temp. Change	<1.0 °C per 15 min
Humidity	Relative 5 % to 95 %, non-condensing
Vibration Isolation	Required

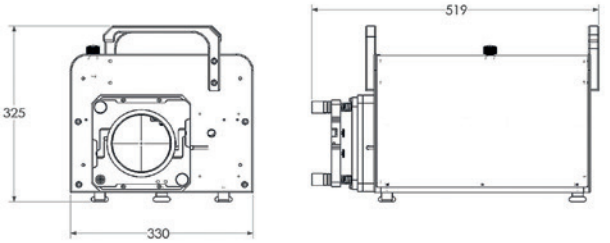
1) Vibration free environment with temp. change < 1 °C / 15 min. between 20 - 23 °C, no thermals
2) 3 sigma of the rms for 128 data sets, each an average of 32 measurements
3) These parameters state conditions which the system can operate; they do not represent the environmental stability required to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

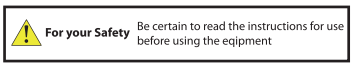
Configurations
- Vertical down-looking or Horizontal
- Phase-Shifting

Accessories
- Full Set of Transmission Spheres
- Attenuators
- Custom Mounts & Stages

Computer Workstations
- State-of-the-art computer workstation with IntelliWave™ software pre-installed
- All hardware interfaces pre-installed for complete MarSurf FI 2100 AS interferometer data acquisition

IntelliWave™ 6.7 Software
- Asphere Wizard with Proprietary CGR™ Technology
- Five polynomial sets to choose from
- Diffraction and geometric analysis
- Derivatives and Integrals
- Complex masking including unlimited mask groups
- Fiducials and image transformations
- Measurements: Wavefront, Wedge, Angle, Prisms,
- 3-Flat Test, Two Sphere Test, Corner Cube
- Interface: IDL™, LabVIEW™, Excel™





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