

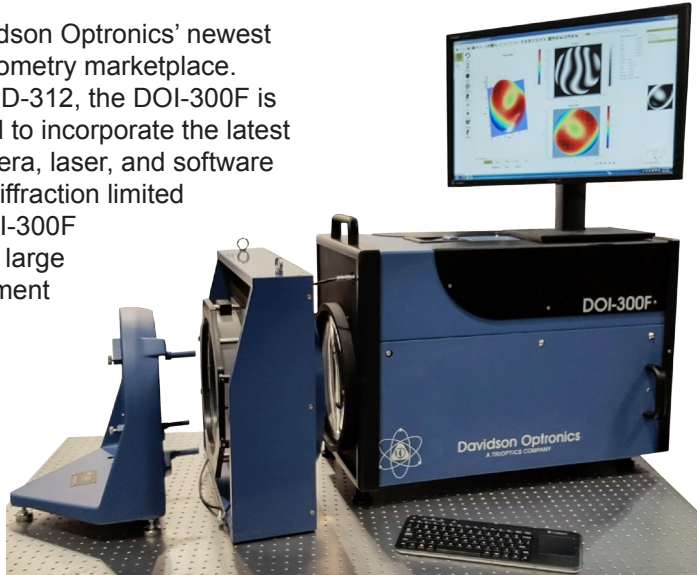
Davidson Optronics

A TRIOPTICS COMPANY

Putting Your Future in Focus

12" (300mm) Fizeau Interferometer | DOI-300F

The DOI-300F is Davidson Optronics' newest addition to the interferometry marketplace. Replacing the original D-312, the DOI-300F is completely redesigned to incorporate the latest in phase-shifting, camera, laser, and software technologies. With a diffraction limited optical design, the DOI-300F provides unparalleled, large plano optics measurement accuracies at an unsurpassed cost-performance benefit ratio.



Target Applications

The system will measure plano surfaces and wave fronts.

Potential applications are:

- Flat optics
- Flat prismatic optical surfaces
- Prismatic optical transmitted wave fronts leading to prism angle measurement
- Wedge angles

Flat Optics: Surface Testing

| | |
|--------------------------|---|
| Surface Roughness: | <100 nm Rq |
| Surface Flatness: | <15 μ m power on 75 mm part |
| Repeatability: | <0.5 nm RMS (16 avgs: Test - reference) |
| Measurement Uncertainty: | 60 nm to 30 nm PV 2σ , on a 36 Zernike filtered data set |
| Reflectivity: | 1% to 20% - with uncoated TF |
| Test part size: | 300 mm (12") to 75 mm (3") diameter |
| Spatial Resolution: | minimum of 500 pixels across a 75 mm diameter |
| Profile Shape: | Round, elliptical, square, triangular, or multi-sided |
| Materials: | Glasses, ceramic, and metals |
| Analysis Results: | RMS, PV, PVr, Zernike filtering as desired |
| Masking: | Auto-circular, manual other shapes |

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System Features

| Optical | |
|-------------------------------|--|
| Configuration: | Laser based Fizeau Interferometer |
| Illumination: | Frequency stabilized 632.8nm HeNe laser |
| Coherence Length: | > 10 meters |
| System Clear Aperture: | 305 mm |
| System Imaging Aperture: | 300 mm |
| Data Acquisition: | Phase Shifting Interferometry (PSI) |
| PSI Technique: | PZT mechanical phase shifting |
| Image Zoom: | 1X only (no optical zoom) |
| Zoom Method: | Electronic Image Zoom (1X, 2X, and 4X) |
| Imaging: | Coherent (no diffuser glass) |
| Camera: | 2K X 2K GigE |
| Sensor Pixel Resolution: | ≥ 512 X 512 on 75 mm diameter part |
| Focus Control: | Motorized & controlled through software interface |
| Optical Focus Range: | + 2 meters |
| Beam Block: | Mechanical and manual |
| Alignment Range: | +/- 2 deg. minimum |
| Alignment Type: | Dual spot |
| Alignment reticle: | Computer generated |
| Performance | |
| Repeatability: | $\lambda/5000$ PVr (16 averages) |
| Uncertainty (Nulled): | $\lambda/20$, plano surfaces, TF dependent, with reference subtract |
| Uncertainty (3 tilt fringes): | $\lambda/10$, over 300 mm aperture, TF dependent, with reference subtract |
| Electrical | |
| Power Consumption: | <100 W |
| AC Mains: | 90V to 220V and 50/60Hz universal |
| Voltage Switching: | Automatic (Universal Power Supply) |
| Certifications: | CE |
| Physical | |
| Size: | 775mm (long) x 400mm (wide) x 500mm (high) Excludes the PMR, TF & TF tip/tilt mount |
| Weight: | 65 Kg |
| Orientations: | Vertical down looking or horizontal, factory set positioning. No quick change between positions. |
| Horizontal Center Line: | 205 mm from table |
| Operating Temperature: | 15°C to 30°C |

Software

- Operating System: Windows 7 64 Bit Professional
- Data Acquisition Software: AOX/Reveal acquisition and analysis platform with PV, PVr, RMS, Zernikes, multiple mask sets, customizable & automatic report generation, multiple units selection, automatic phase-shift calibration, 2D & 3D graphics, supports two monitors, on screen 2 spot alignment.