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Capabilities

Optical Components

Quality Certification

- ISO 9001:2000

CNC Glass Machining

- Glass machining to >1 meter size
- Lightweighting

Aspheric Surface Fabrication

- Sizes to 500mm
- Accuracy to $\lambda/5000$ RMS @ 633nm
- Wide range of materials and geometries

Rotary Polishing (up to 1.2m diameter)

- Flats to 12nm ($\lambda/50$) PV
- Low Power Spectral Density signatures
- Surface roughness to <0.2 nm RMS
- Angular tolerances to 0.1 arc second
- Wedge tolerances to 2 arc second
- 20/10 at meter class optics

Sub-Aperture Finishing

- Computer Controlled Optical Surfacing (CCOS)
- Ion Beam Figuring (IBF)
- MRF polishing

Cleaning

- Class 10,000 and 100,000 cleanrooms

Materials

- Precision optical glass, fused silica, Zerodur[®], sapphire, Cleartran[™], ceramics, silicon, silicon carbide (SiC), ALON[™], phosphate

Coating

- Sizes from 1mm to 760mm
- Wavelengths from 200nm to 2000nm
- Spectra V[™] high-efficiency anti-reflective coatings at 633, 1053, and 1550nm
- Polarizing and non-polarizing beamsplitters and prisms
- Custom coating design and manufacturing
- Low-stress metal and dielectric coatings
- Aluminum, silver, and enhanced reflectors
- High laser damage threshold coatings
- Polarization Beam Combiners

Metrology

- Interferometers up to 32", and stitching capabilities for larger sizes
- Transmission Spheres up to 12"
- Roughness measurement (WLI & AFM)
- Mid-spatial frequency measurements
- Null lenses (CGH, etc.)

Electro-Optics

Quality Certification and Process Control

- ISO 9001:2000 (Tucson)
- ISO 13485:2003 (Medical devices–Quality Management Systems) (Tucson)
- FDA registered contract manufacturer
- Demand Flow Technology system
- MIL-STD-1246 cleaning standard (NIF Certified)

Services

- Concept design and prototyping
- Pre-production manufacturing
- Design for Manufacture and Assembly
- Custom tooling design
- Prototype manufacturing facilities

Facility

- Class 10 clean room
- Configurable manufacturing
- Laminar flow work stations
- ESD production stations
- Precision cleaning

Production Equipment and Processes

- Single point diamond turning
- Multi-axis active alignment stations
- Reticle projection systems
- Fully integrated metrology

Metrology

- ZYGO advance metrology systems
- ZYGO 532nm, 633nm, 1054nm and 1550nm GPI[™], NewView[™], and ZMI[™] systems
- Aspheric null and metering mirror systems
- Vertical tower system test benches
- Multi-axis MTF, large aperture, and multi-spectral
- Starrett[®] CMM
- Distortion Testers



5-Axis Glass & Ceramic Machining



Thin Film coating



MRF



Ion Beam Figuring



Fused silica



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