Capabilities

Optical Components

- CNC Glass Machining
- Glass machining to >1 meter size
- Lightweighting
- Aspheric Surface Fabrication
  - Sizes to 500mm
  - Accuracy to X/5000 RMS @ 633nm
  - Wide range of materials and geometries
- Rotary Polishing (up to 1.2m diameter)
  - Flats to 12mm (X/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 reflectance
  - 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 (ML & AFM)
  - Mid-spatial frequency measurements
  - Null lenses (CGH, etc.)

Electro-Optics

- Quality Certification and Process Control
  - ISO 9001:2000 (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

High Precision Optical Components and Electro-Optic Solutions

From concept, to volume production
ZYGO Optical Systems Division specializes in producing complex electro-optical systems and high-precision optical components for the Life Sciences, Defense & Aerospace, Semiconductor, and Industrial OEM markets. From concept, design and prototype to volume production, ZYGO will work with you to optimize your design for performance, cost and delivery. ZYGO engineers and technicians can engage your project at any point in the process, with the thoroughness and know-how expected from an industry leader.

World-class optical know-how and innovation
ZYGO’s experience and history of innovation makes it one of the most respected optical companies in the world. From developing the industry’s first precision asphere grinder for production, to becoming the world’s sole volume supplier of laser fusion amplifier slabs, to developing cutting edge medical laser delivery systems and helmet mounted displays - ZYGO is more than a collection of people and machines; it embodies a culture of industry-changing innovation.

Industry leading metrology team
ZYGO benefits not only from world leading optical metrology but, more critically, benefits from the people who create it. A synergistic relationship with our Metrology Solutions Division integrates our scientists, engineers, and production technicians into a resource of extensive knowledge and experience found only in tier-one optical companies. The application of this knowledge ranges from proprietary metrology for real-time process control, to ISO standardized quality assurance procedures, yielding cost effective systems, and components manufactured to your exacting specifications.

Multiple capabilities, one mission
ZYGO Optical Systems Division has the breadth of expertise to join high precision optical design with high quality volume manufacture. One mission – bringing high precision, quality, and volume production together.

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