

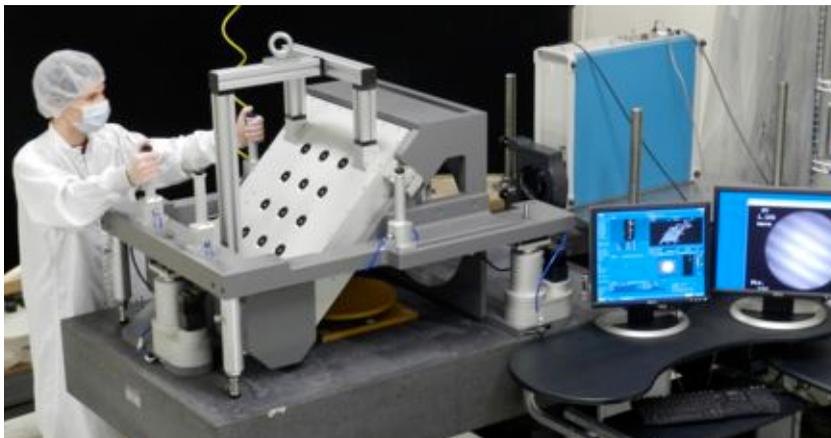


Aperture Optical Sciences Inc. provides some of the most unique custom precision optics and systems made in the world today. We develop and employ advanced technology for making aspheric mirrors and lenses, SiC optics, optics for high energy lasers and engage in developmental processes of advanced materials. AOS optics are deployed in aircraft vision systems, industrial scanners, research facilities using advanced lasers, and remote sensing applications.



Custom Mirror Mounts

Precision optics will only perform when assembled into opto-mechanical assemblies that are designed and manufactured to minimize the effects of thermal gradients, vibration, gravity, and dynamic loading. AOS's core competencies in optics manufacturing, metrology and opto-mechanical modeling lay the foundation for enabling our products to deliver superior performance when deployed in a variety of laboratory and extreme environments. We use a combination of standard platforms and mechanisms plus custom designs to meet the specialized needs of our customers.

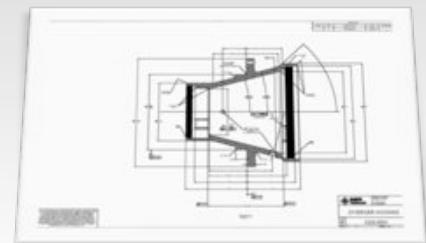


AOS Technology

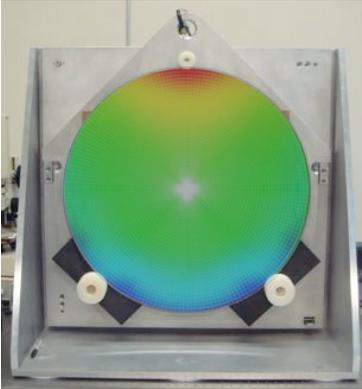
Finite element analysis alone can give a variety of results. The key to sound engineering is to combine mechanical analysis, with experienced interpretations and performance predictions plus accurate verification of quality. AOS uses smart design with in-situ interferometry during the assembly process to guaranty results. We use industry leading software

AOS MANUFACTURING CAPABILITIES

- **Apertures:** 25-mm – 1000-mm
- In-house designed and manufactured
- Manual & Automated Alignment controls
- High Resolution Actuators
- Integrated Optics Assembly
- Vacuum Compatible Options
- Finite Element Modeling
- Gravity compensating actuator options
- Clean room assembled and tested



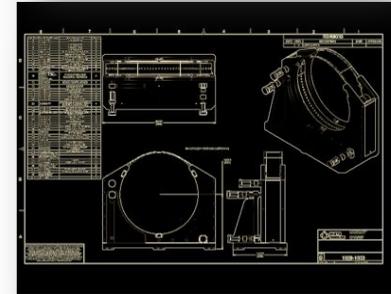
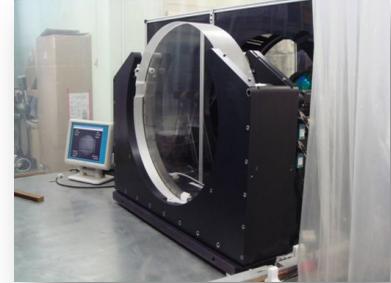
Design Considerations for Large Optics Mounting:



Applications Engineering: Our engineers take your requirements for dimensions, mass, wavefront quality, environment, stability, adjustability, materials compatibility and system integration and convert these inputs into reliable designs that meet your budget. We support all our custom products with warranty and technical support

Optics Design: The best optics designs take into consideration sound principles for mounting. We are able to provide both the optics and the mounts to enable the lowest cost and most reliable solutions.

Mechanical Modeling: We perform in-house analysis of mechanical deflection and stress due to static and dynamic loading during mounting and in a variety of environmental conditions. We provide detailed error analysis and error budgeting to make sure your specs are met.



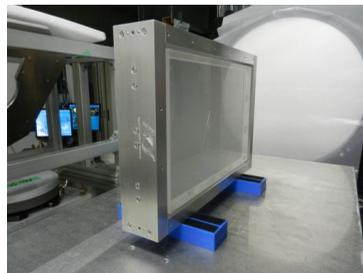
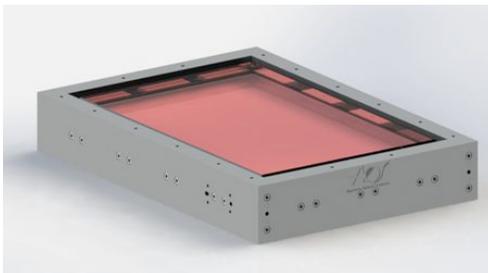
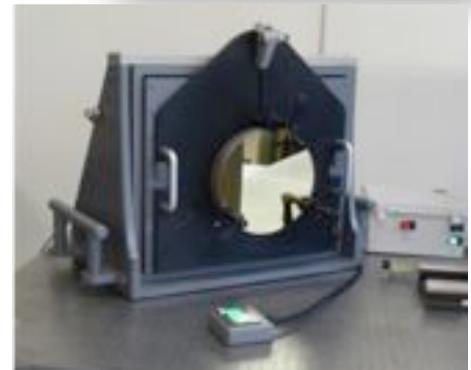
Verification with Interferometry: To ensure compliance with our models we verify our mounts through assembly of the optics and verification through interferometric wavefront measurement.

Clean Assembly: AOS is able to provide class 1000 level assembly and packaging.

Vacuum Compatibility: Components are manufactured in-house in such a way as to remove all cutting fluids and organics. This process consists of cleaning with detergents, solvents, and ultrasonic treatments. Metal components are dried in clean – filtered air and then packaged in nitrogen filled clean room bags. Component designs allow for venting and polymer fee assembly.

Remote Motorized Alignment Controls: Mounts are available with optional motorized controls. AOS's 3rd generation actuator design delivers zero backlash motion control with 40 nanometer resolution. Options are available with a touch-screen HMI, handheld pendant control or remote PC control.

Modular Kinematic Mounting Frames for Large Optics: Frames are of aluminum construction with Teflon or stainless steel edge flexures designed to isolate the mirrors from mechanical distortions delivered by mounts. Metal-glass interfaces are dampened by a vacuum compatible interface material. Frames interface easily with kinematic hardware designed for our customers' applications.



Aperture Optical Sciences Inc.'s mission is to provide its customers with optical components, systems and optically driven technologies that will fuel the growth of their businesses in the US, Japan, Europe and Asia. We are a privately owned US company and ITAR registered.

Our principal products are Silicon Carbide optics, Aspheric mirrors and lenses, laser optics, and opto-mechanical systems including precision beam steering systems, telescopes, and laser focusing systems. Our customers use our optics in high-energy lasers, airborne vision systems, remote sensing, optical lithography, and a variety of scientific research applications.

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