



Our Optics Your Vision



# Lens System Design & Assembly



# Our Customers

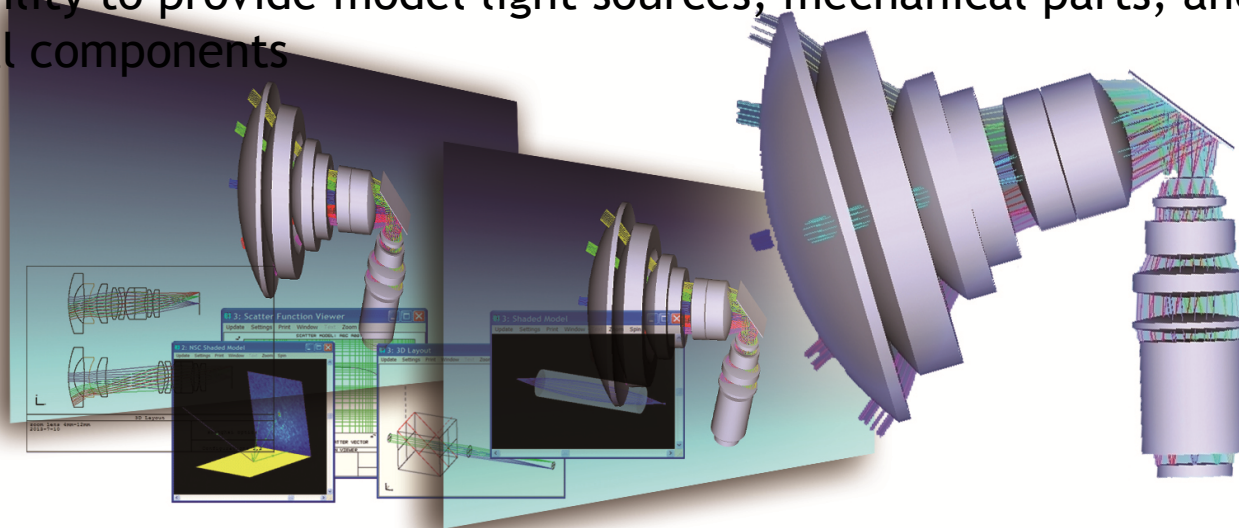
About 60% of our products are exported to Japan, United States, Germany, France, Australia and Spain. We are one of the leading optics suppliers in China.



# Lens System Design

Shanghai Optics provides a variety of designs (imaging, illumination and opto-mechanical systems) for all different types of applications.

- Precision optical system design and optimization
- Powerful optical and illumination analysis
- Fully integrated system including CCD/CMOS and circuit board integration
- Timely communication with customers
- Capability to provide model light sources, mechanical parts, and optical components



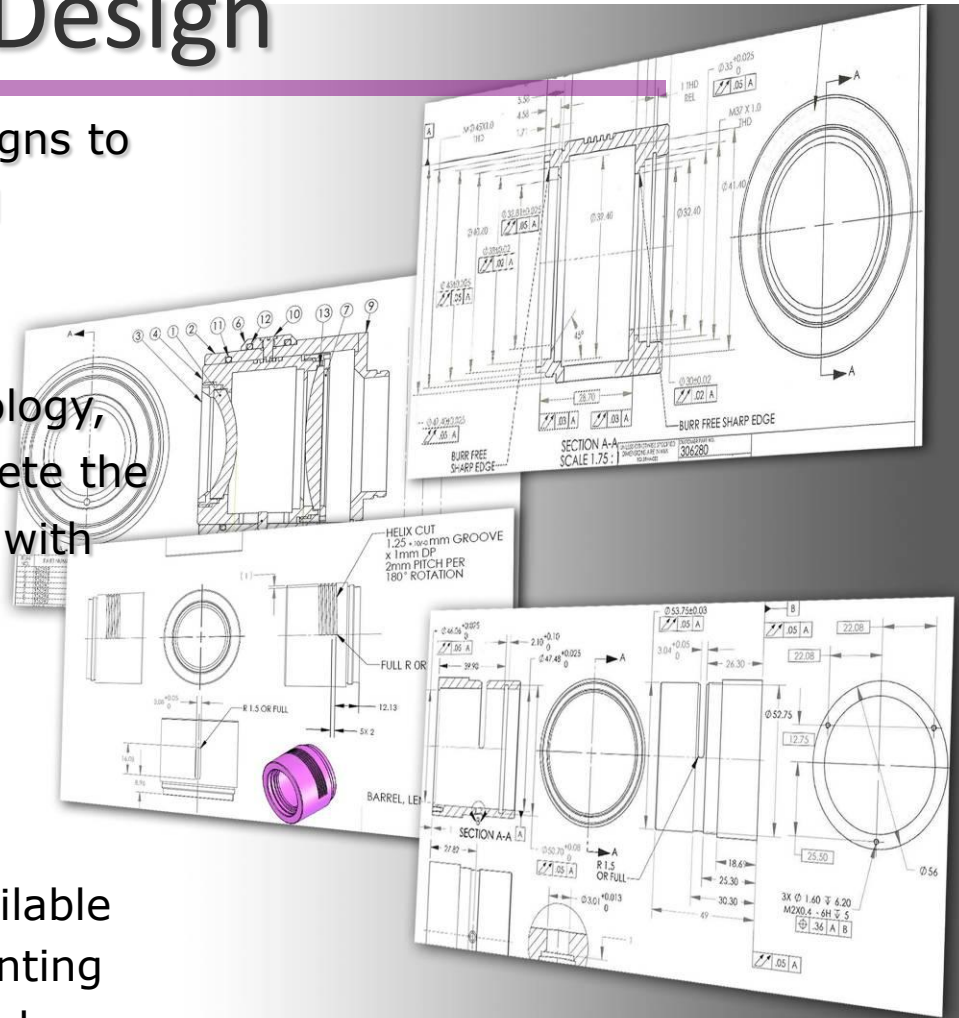
# Lens System Design

Shanghai Optics offers mechanical designs to fit our customers' current and standard interfaces.

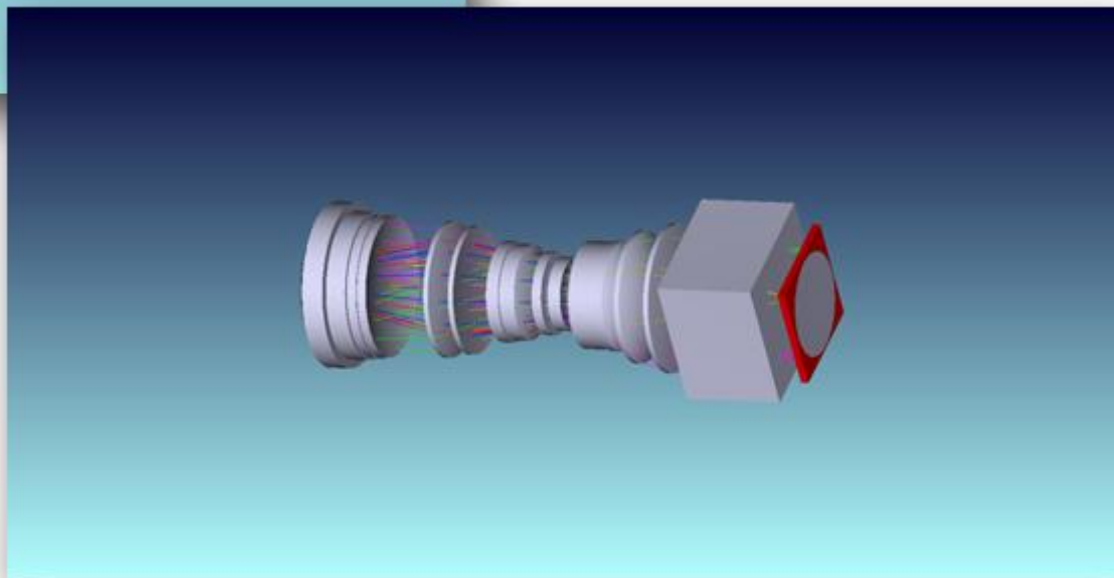
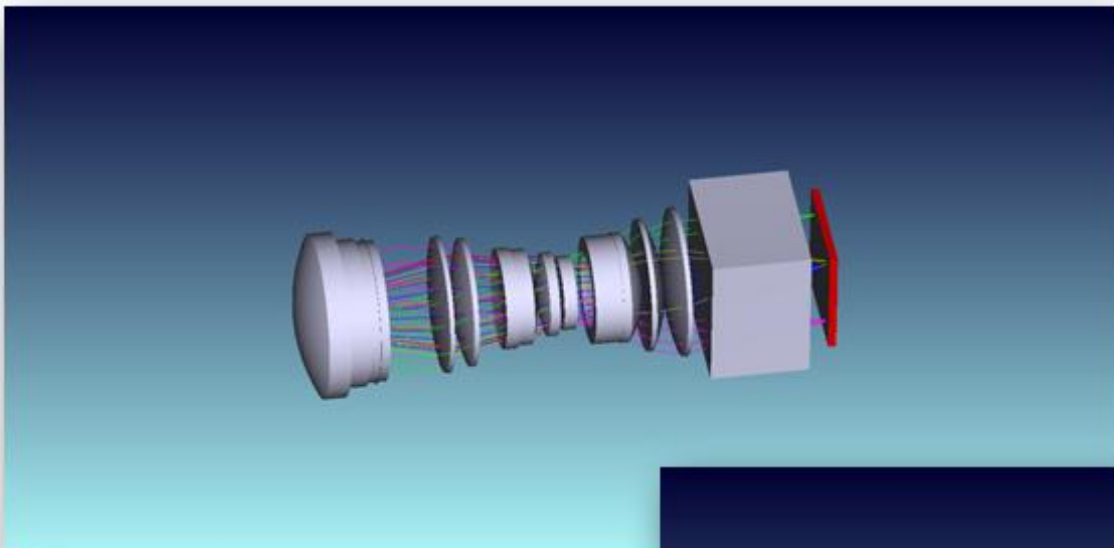
With second-to-none processing technology, we are confident in our ability to complete the most efficient mechanical design along with secure optical performance.

(3D projector metrology on site)

- Diameter tolerance:  $\pm 0.025\text{mm}$
- Aperture tolerance:  $\pm 0.020\text{mm}$
- Various outer surface finishing available
- Logo etching, curving, and pad printing
- Materials: aluminum, stainless steel

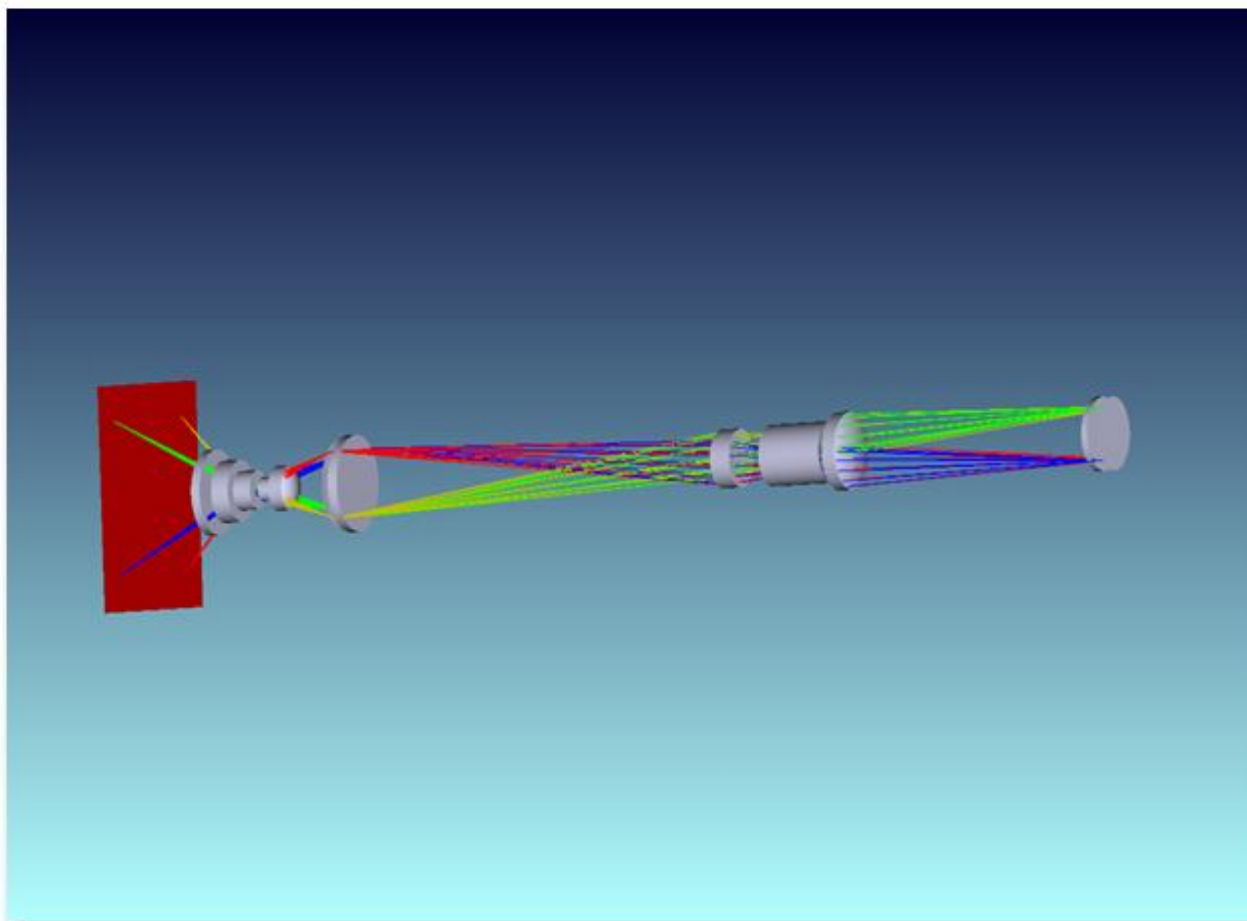


# Lens Design Portfolio:



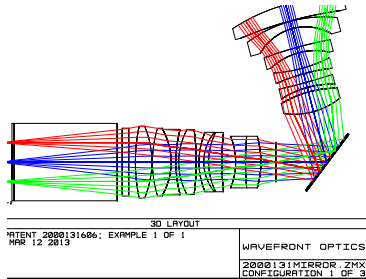
Projector Zoom Lens

# Lens Design Portfolio:



Micro-Scanning Lens

# Lens Design Portfolio:



Rear Bending TV Projector Lens

# Vertically Integrated Capabilities

- Optical systems design
- Lens design
- Mechanical/Electrical/Systems design, modeling, and analysis
- Coating design
- Precision lens assembly
- Metrology including Zygo NewView, ZMI, VeriFire systems, Zygo proprietary distortion tester, multi-axis MTF (large aperture and multispectral), Aspheric null and metering mirror systems, vertical tower system test benches, CMM's, microscopes, autocollimators, spectrophotometers, profilers, and other advanced measurement equipment.





# Lens System Assembly

Shanghai Optics offers a wide range of lens system assembly services covering visible to UV & IR wavelengths. We serve customers ranging from biomedical, imaging & illumination, to industrial and military applications. With extensive experience in manufacturing optical components, we have an excellent understanding between manufacturability and design expectations.

## Industrial



## Biomedical



## Military



## Imaging & Illumination



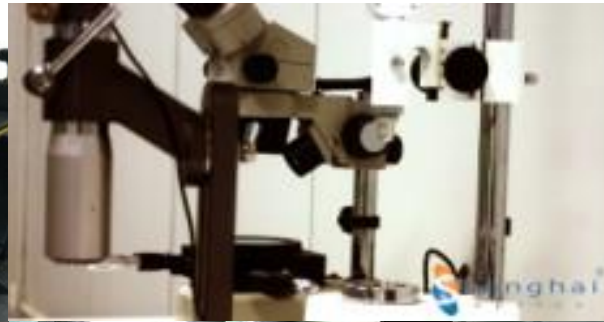
# Lens Assembly

- **High Quality Manufacturing Capability**

With connections and support from domestic materials & accessories suppliers, SO can often propose affordable solutions without sacrificing performance

- **Ever-Expanding Metrology Capabilities**

SO is well equipped and constantly looking to expand its metrologies to ensure we can fully meet and measure our customers' specifications.



Metrology

# Capability Highlights

## Large glass material inventories

We have over 800 types of glass materials in stock for daily usage. Special materials can be arranged per the customer's request.



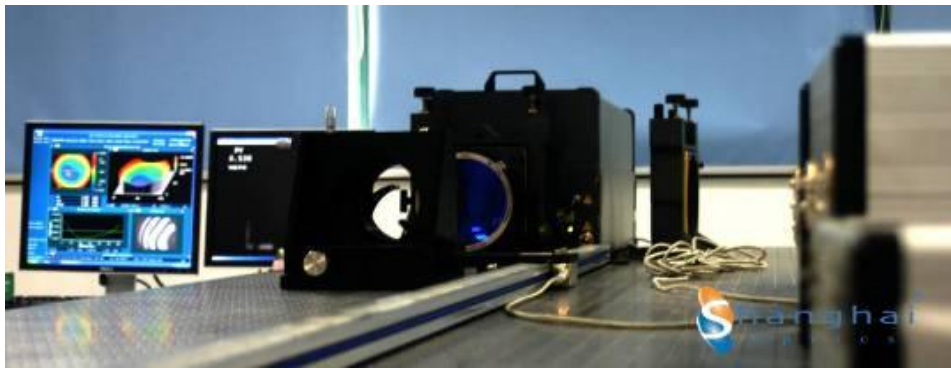
# Capability Highlights

We have built up a collection of more than 5,000 types of high end test plates. They are all sorted and classified, ready for the customer's selection.



# Metrology Equipment

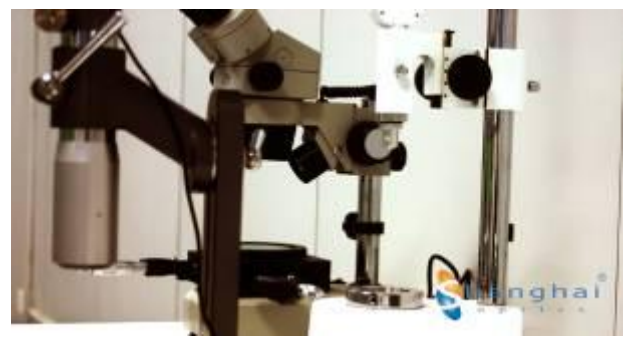
- *Zygo Interferometer 6'*



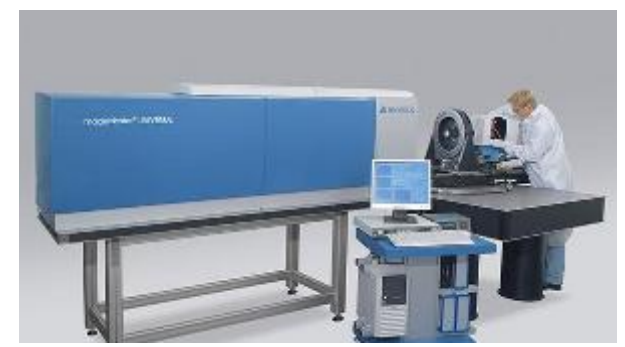
- *Parallel photocell*



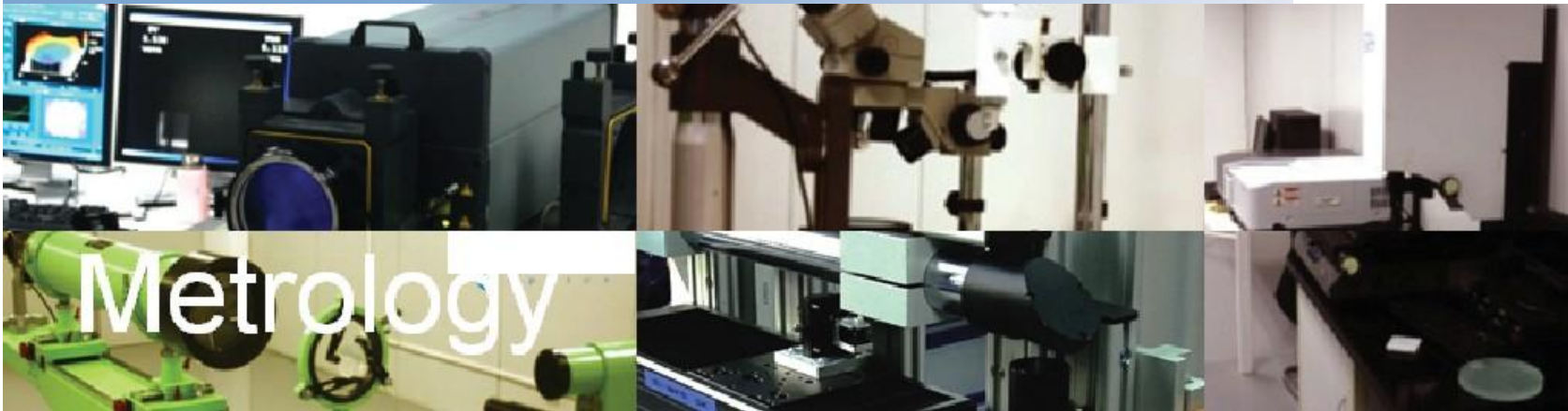
- *Goniometer*



- *TriOptics MTF*



# Metrology Equipment

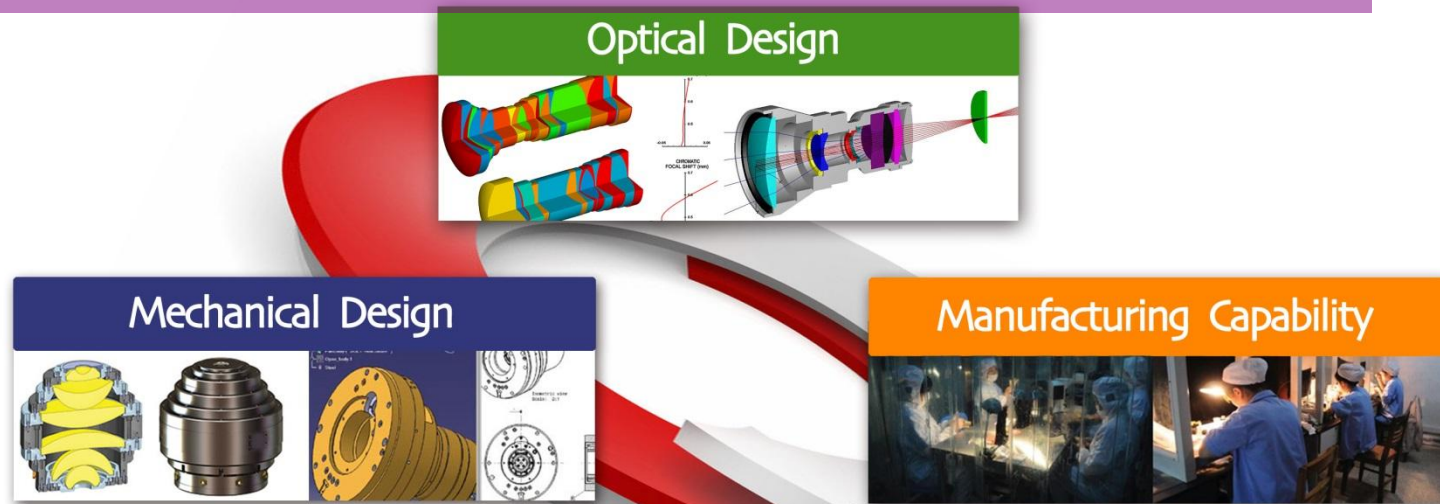


# Why Shanghai Optics

- Reduce risks associated with handling optics
- Reduce the potential distortion of optics within the assembly and ensure the optimal accuracy
- Inspect and test mounted optics



# DFM Input from SO



## The Cutting-Edge Advantages SO Offers:

- **Cost-Effective Philosophy**

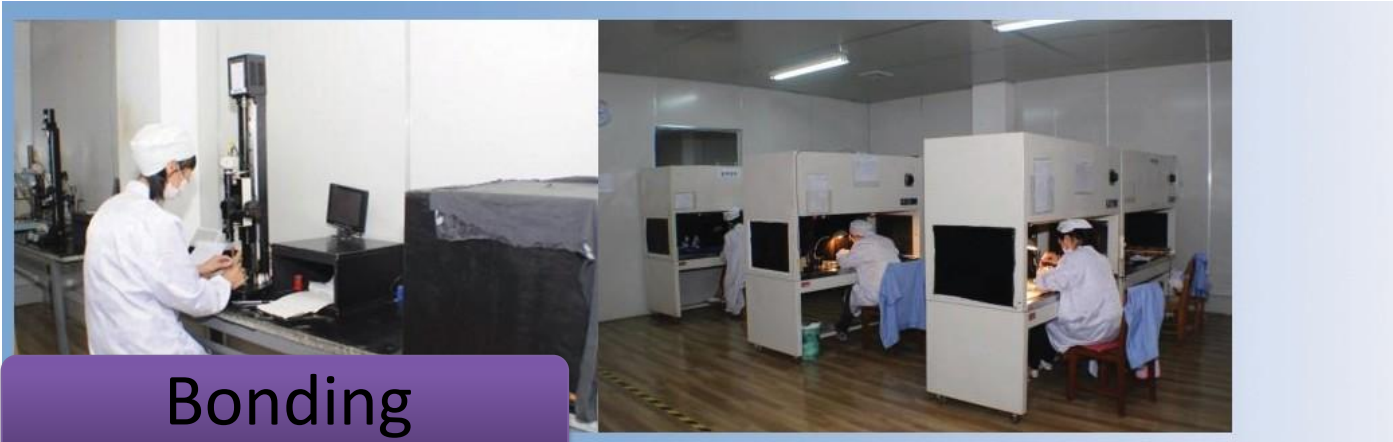
Our experienced optical designers and engineering team can help you achieve the most cost-saving solution for your application.

- **System Optimization**

With over 50 years of manufacturing experience, SO can offer precise analysis to each single element in your system, preventing unnecessary specs that drive up the overall system cost.



# Production Highlights



Bonding



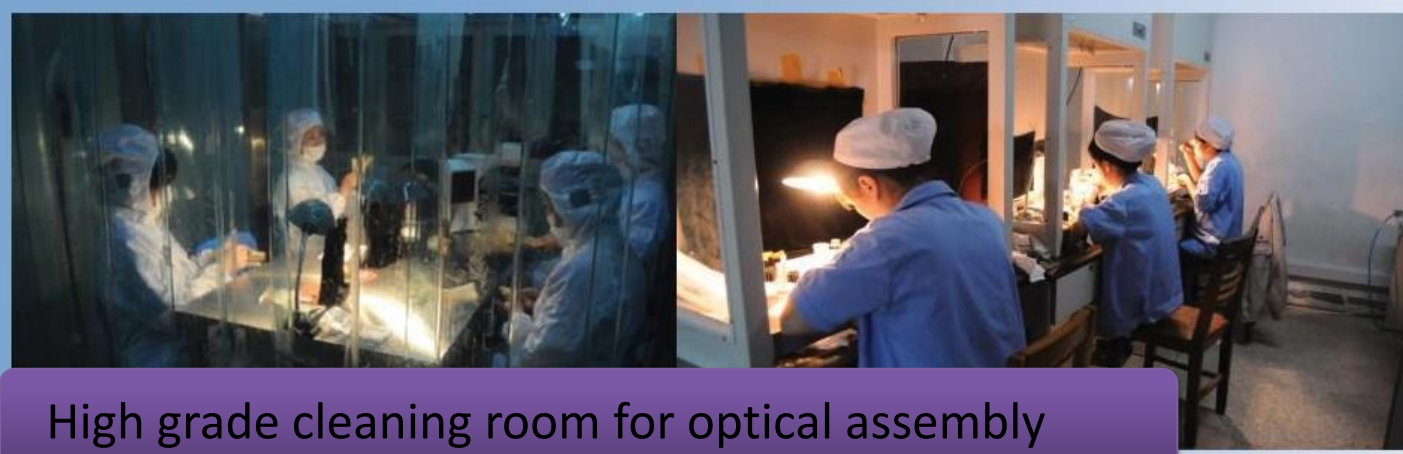
Components Quality Inspection

# Production Highlights



Optical Assembly

# Production Highlights



High grade cleaning room for optical assembly



Focus and centering testing



Thank you!