

Optica

Excellent In Optics

An ISO 9001:2015 and AS-9100D Certified company



**“Your
Trusted
Partner in
Photonics
Innovation”**

- UV-VIS-NIR-IR Precision Lenses and Prisms
- High Power Laser Optics
- Diamond Turned IR Optics
- Light-Weighted Optics
- Off-axis Parabolic Mirrors
- Electro-Optics Systems
- EOTS Sapphire Domes
- Optical Payloads for Space
- Ultra-Precision Optical Windows
- Large Sized Optical Windows & Mirrors
- Large Size Complete Schlieren Systems
- Precision Polymer Imaging Optics

www.opticsindia.com
info@opticsindia.com





D. Rajendra Kotaria

Managing Director

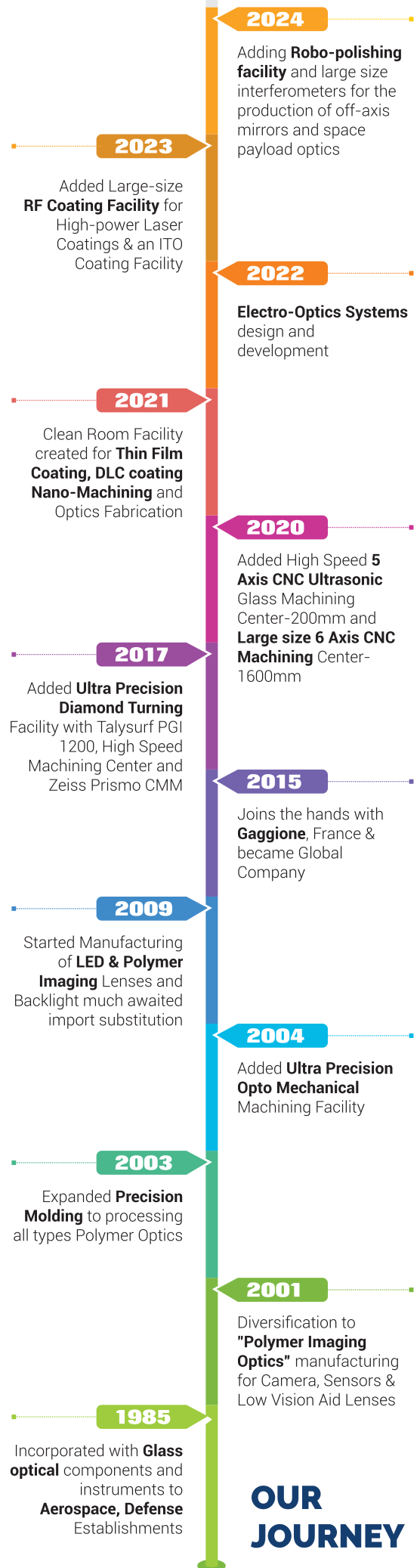
Thank you for considering Optica for your Precision Optical Parts, Optical Assemblies, Large Optics Turnkey Projects, Diamond-Turned IR Optics, Precision Polymer Optics, and Ultra-Precision Mechanical Parts for Space. Optica has been in business since 1985, innovating and producing optical products for a wide range of market applications, including Industrial, Aerospace, Medical, Defense Labs, R&D, Education, and Surveillance. Headquartered in Bengaluru, India, we design, develop, manufacture, and distribute optical components and assemblies using the latest processes and advanced manufacturing technologies. In 2015, Optica became a part of Gaggione S.A.S, France.

As one of the founding members of the Needy Heart Foundation, a social and charitable trust involving dedicated doctors and industrialists, we support heart patients in need of surgery as part of our CSR activity.

We pride ourselves on delivering high performance, excellent customer support, quality products, value-added designs, and cost-effective volume manufacturing.



Bengaluru (IN) | Chicago (USA) | Genoa (IT) | Geneva (CH)
Gaggione (France) | Quadratec (Canada) | La Cluse (FR)
Munich (DE) | Shanghai (CN)



OUR JOURNEY

We are an ISO 9001:2015 and AS-9100D certified company

Optica is proud to be an ISO 9001:2015 and AS-9100D certified company, ensuring the highest standards of quality management and aerospace manufacturing. Our certifications reflect our commitment to excellence in precision optics and customer satisfaction.



VISION

To be a leader in Electro Optics.



MISSION

To fulfil the global photonics demand from UV (Ultraviolet) to IR (infrared)

CORE VALUES



CARE

We strive to show concern & build a foundation of trust.



INNOVATION

Our organization process encourages new ideas, methods, workflow, immediacy & velocity.



SPEED

A competitive advantage, a powerful metric, immediacy & velocity



SUCCESS

Excellence in work we do drives us to deliver our vision to the world.



KNOWLEDGE SHARING

We foster collaboration thereby enhancing learning experience.

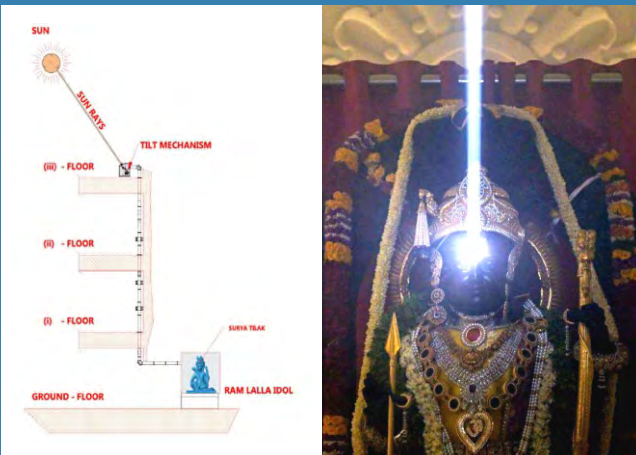
Awards, Certifications And Contributions



Received "Defence Technology Spin off Award" Form Hon'ble Prime Minister During Year - 2002 for Manufacturing Polymer Aspheric lenses as LOW VISION AIDS, First of its Kind in India.



Received "Appreciation Award" form Hon'ble Defence Minister During Year-2020 for Development & Installation of Schlieren System for Hypersonic Wind Tunnel DRDL-DRDO, Hyderabad, India.



Optica sponsored Surya Tilak Project for Ram mandir in Ayodhya



Schlieren Imaging System for Trisonic Wind Tunnel Project-VSSC

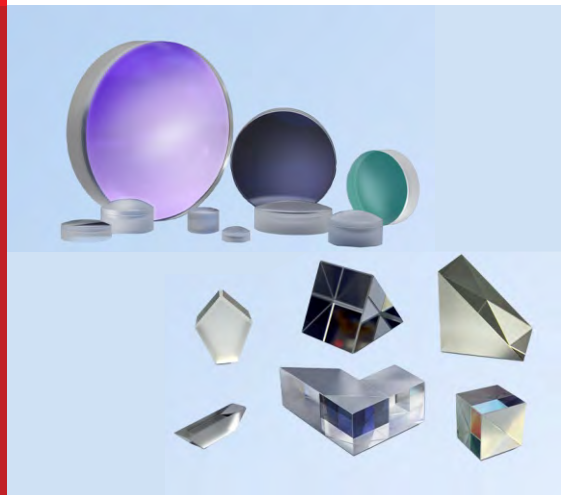
DESIGN & DEVELOPMENT



We strongly believe that good design, combined with effective engineering practices and efficient document control, is crucial for successfully completing projects within the agreed timeline. Our experienced engineers ensure that designs are robust and cost-effective, meeting customer-specific performance and reliability expectations. We have the necessary software to design optical components and optical systems and can also receive 3D part files and other design inputs in STEP or IGES formats. Our software suite includes Zemax, Oslo, and TracePro for lens and system designs; PRO-E and SolidWorks for opto-mechanical designs and mold designs; and CREO Parametric 6, NX, Calypso, Diffsys, and others.

PRECISION UV-VIS-IR OPTICS

We manufacture a wide range of optical components, viz: Lenses, Achromatic Doublets, Precision Windows, Optical Domes, Spherical & Parabolic Mirrors, Off-Axis Parabolic Mirrors, Diamond-Turned Metal Mirrors, Silicon & Germanium Aspheric Lenses, Diffractive Optics, Wedges, Axicons, and Optical Flats with accuracy up to $\lambda/20$. We also produce all types of Prisms, Laser Optics, HR Laser Mirrors, Interference & Color Glass Filters, Plate & Cube Beam Splitters, Spherical & Parabolic Mirrors up to Dia 1200 mm, Machined Optical Glass Parts, Reticles, Optical Assemblies, Schlieren Systems, and Turnkey Projects.



TURNKEY PROJECTS

Optica specializes in delivering large-scale turnkey optical projects, providing end-to-end solutions from design and development to precision manufacturing and assembly



■ Schlieren Imaging System for Trisonic Wind Tunnel Project-VSSC



MANUFACTURING FACILITY



- ✓ Curve Generators and Centering and Edging Machines
- ✓ Optical Grinding and Polishing Machines
- ✓ Large Optics Grinding & Polishing Machines upto 1200mm
- ✓ Diamond Turning Machines Nanoform X up to Dia. 420mm
- ✓ 5-Axis High-Speed Ultrasonic Glass CNC Machining Center
- ✓ Thin Film Coating Plants for Optics & Polymer Optics
- ✓ 6-Axis High Speed Large Size CNC Machining Center 1600mm
- ✓ CNC Turning Center & other conventional Machines like Milling, EDM, High Precision Surface Grinding Machines
- ✓ Ultraprecision Lens Moulding M/C 30T-350T
- ✓ 6-Axis High Speed Large Size CNC Machining Center 1600mm
- ✓ Robo-polishing facility for the production of off-axis mirrors and space payload optics
- ✓ Materials Processed: N-BK7, Silicon, Germanium, Chalcogenide, Zerodur, Astrosital, Clearceram, Fused Silica, Sapphire, Pyrex, CaF_2 , MgF_2 , ZnSe, ZnS, Aluminum, Titanium, Nickel, Copper, PMMA, PC, Invar, etc.



GLASS MACHINING

At Optica, we use high-precision 5-axis CNC ultrasonic technology for machining optics with complex geometries. Ultrasonic machining is a state-of-the-art technology for machining glass with minimal subsurface damage and chipping at the edges. We have the capability to machine materials such as optical glass and ceramics, and recently, we have successfully machined softer materials like Zinc Sulphide and hard materials like silicon.



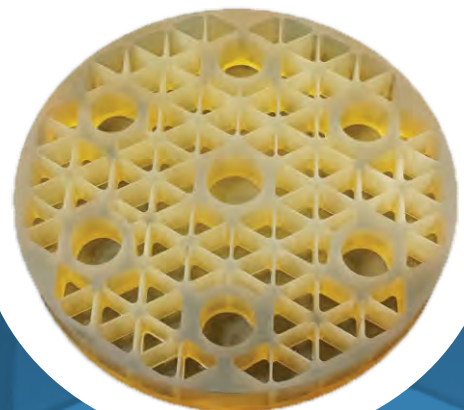
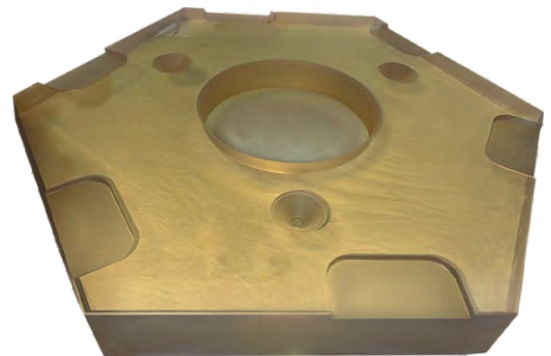
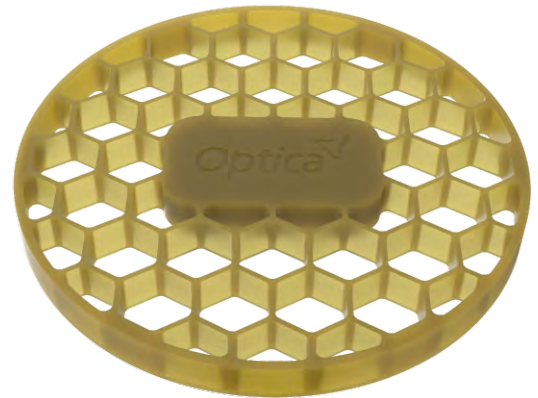
CAPABILITIES

Our glass machining expertise includes the following:

- Mirror substrate light weighting
- Ultra-precision profile machining
- Complex beveling and chamfering
- Precision hole boring with zero subsurface damage
- Machining for monolithic optical components
- Contour machining
- Drilling and Slotting
- Pocketing
- Surfacing

MATERIALS

- Bk7
- B270
- Fused Silica
- Zerodur or Clearceram
- Zinc Sulphide
- Silicon Carbide
- Silicon



OPTO-MECHANICAL PARTS, ASSEMBLIES & LENS MOULDS

We produce various types of opto-mechanical assemblies, vibration isolation tables, motorized stages, and mounts. We develop high-precision moulds for polymer optics, LED lenses, and clear parts.

Our mechanical and optical engineers have the expertise to work on high-value, challenging projects for large optical systems, Lidar telescopes, and turnkey optical Schlieren systems used in wind tunnels.

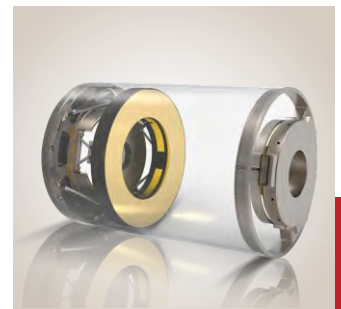
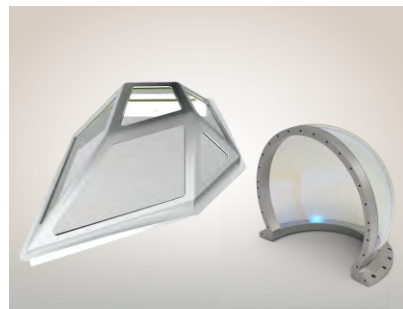
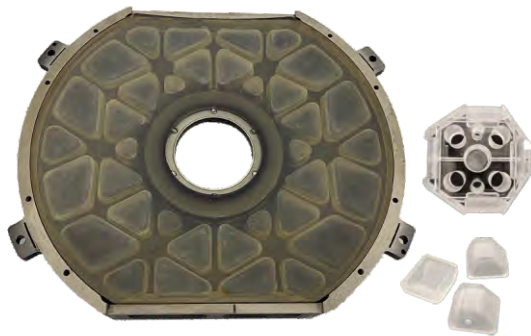
- Opto-Mechanical Equipment Design
- Optical Alignment Tooling and Fixture
- Assembly Procedure and Operating Procedure Documentation



SPACE OPTICS

Optica is a key contributor of navigation camera lenses used in the Chandrayaan 3 rover. The company is working closely with space agencies to develop optical payloads.

- Transmitter and receiver
- Domes and EOTS
- Imaging Systems
- Payloads



PRECISION POLYMER OPTICS

Polymer imaging lenses and LED lenses can be designed by our optical designers using relevant software based on customer and market demand. We develop proto tools for initial trial production and produce lenses and reflectors ranging from 3 mm to 300 mm in polymer. We have a state-of-the-art precision injection molding facility and testing equipment, including integrating spheres, goniophotometers, LM-3 (luminance meter), and spectro-photo colorimeters.

We supply imaging lenses for all authentication devices and lenses for industrial applications.

Applications: Imaging lenses, aspheric lenses, parabolic lenses, camera lenses.



THIN FILM COATING

▶ Anti Reflection Coating

- UV (200-400 nm)
- Visible (400-700 nm)
- IR AR & DLC (3-5 & 8-12 μm)
- Multiband (450-700nm & 1500-1600nm & 3.6-4.9 μm)

▶ Laser Optics

- High LIDT Reflective Mirror 532 nm, 1064 nm $R > 99.98\%$
- Output Coupler 532 nm, 1064 nm
- Beam Bender 532 nm, 1064 nm
- Protection Window 532nm, 1064 nm

▶ Beam Splitter

- UV/Visible, Infrared for different ratios

▶ Neutral Density Filter

▶ DLC Coating

▶ Interference Filter Coating

- Short Pass
- Long Pass
- Band Pass
- UV/Visible for different ratios

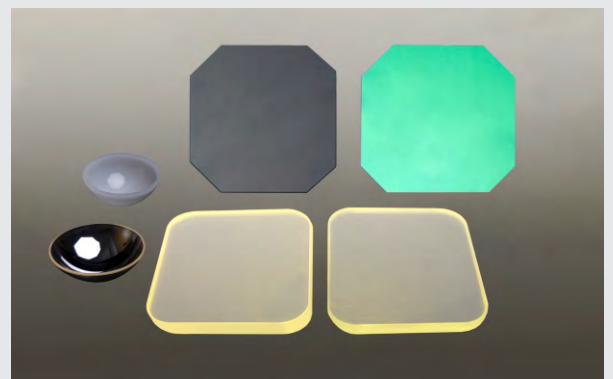
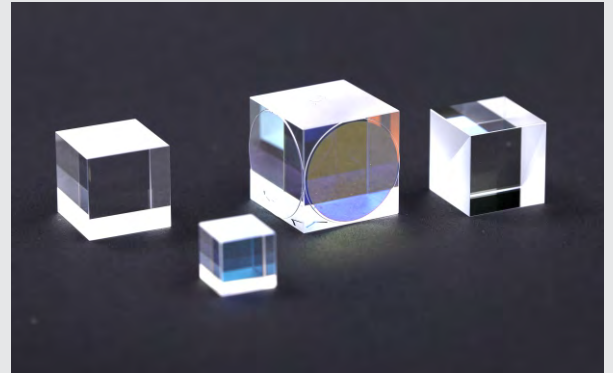
▶ ITO Conductive Coatings

▶ Metal Reflection Coatings

- Protective Aluminum
- Enhanced Aluminum
- Protective Silver Coating
- Protective Gold

▶ Hot & Cold Mirror

- For UV, Visible & IR Wavelengths



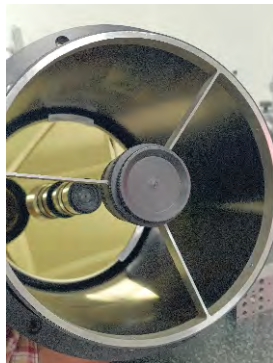
ELECTRO - OPTICAL SYSTEMS & ASSEMBLIES

Optica has world-class precision optics manufacturing, assembly, and testing facilities, including electronics, to deliver quality electro-optical systems. We are highly capable of providing solutions for the defense, surveillance, and aerospace sectors, covering everything from visible to far infrared and refractive to reflective-based systems. Our goal is to offer the best possible solutions to our customers. Our recent experience in fabricating and assembling optics for high-power laser applications has given us the confidence to tackle ever-increasing challenges in delivering high-precision optical systems. We have also ventured into scanning-based optical systems and are currently working on a 2-axis periscopic gimbal system for a ground-based LIDAR application.



We are capable of delivering the following Systems

- Laser Range Finder
- Infrared Illuminators
- Thermal camera
- Ceilometer
- LIDAR System
- Passive FTIR System
- Adaptive Optics Systems
- Thin Film Heater Assemblies
- Lens Barrel Assemblies
- Catadioptric systems

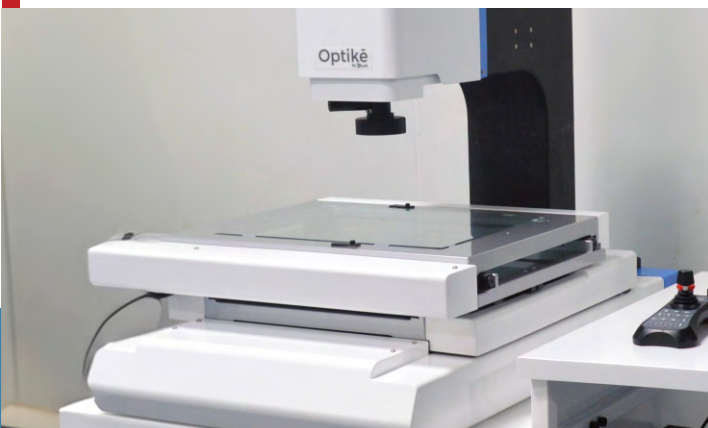
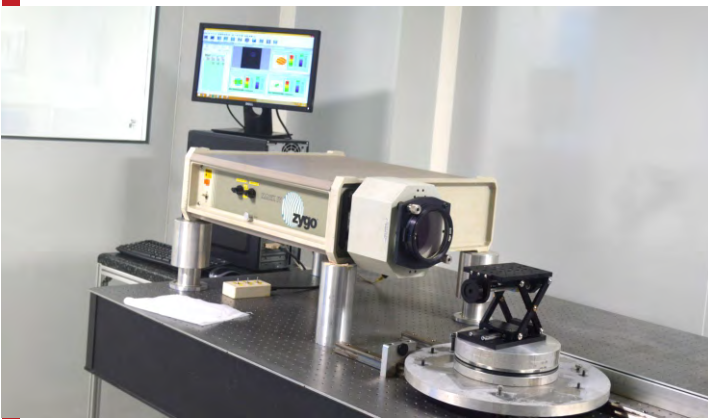
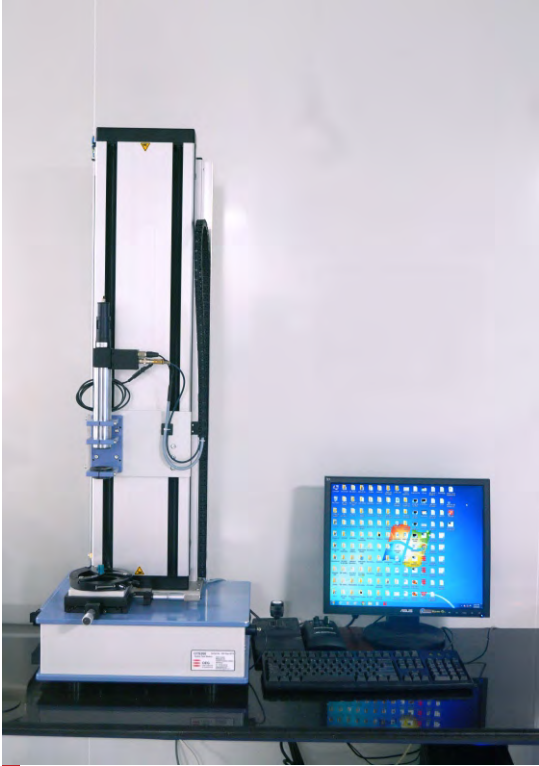


We can design, fabricate and validate any optical systems to customer requirements



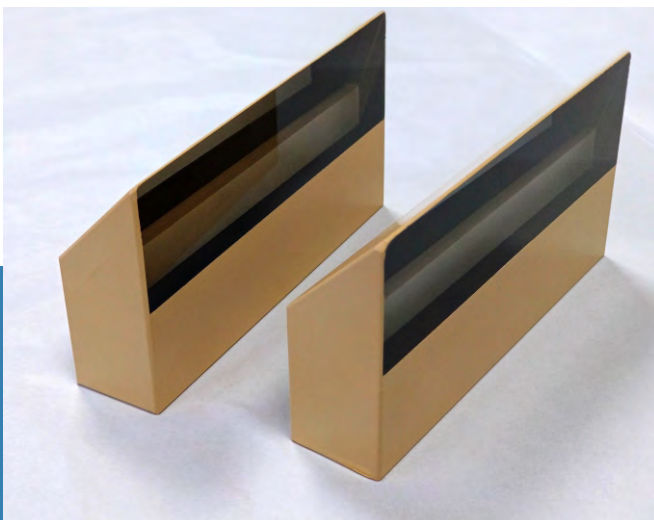
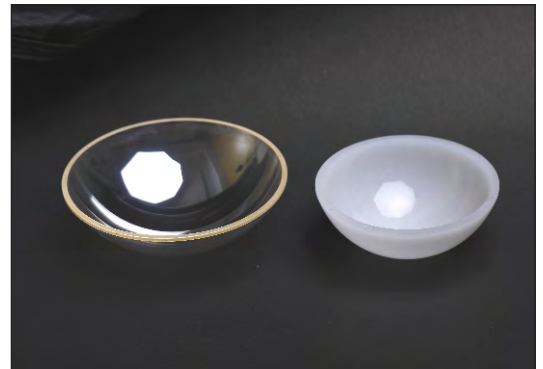
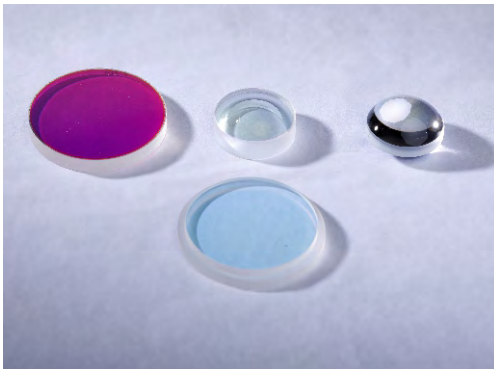
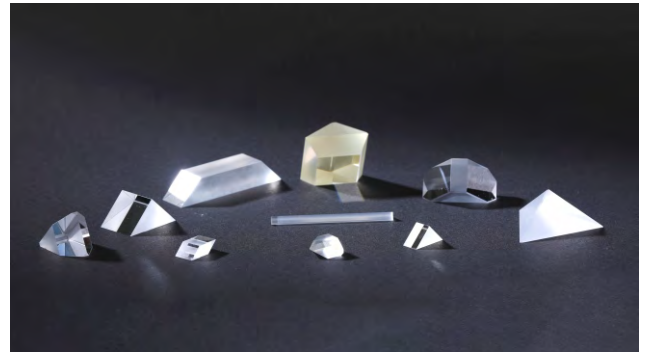
METROLOGY

- Taly Surf PGI 1200 (Taylor - Hobson Make) for measuring Aspheric Form-Figure-Finish
- CMM Prismo (Zeiss-Make) having 0.8 Micron least count, size 900mm
- Phase shift Interferometer (Zygo-Make) with Intellwave software
- Vertical Laser Interferometers
- Optical Test Station from OEG Germany (MTF, FL, BFL, Centering Error, Radius etc)
- Spectrophotometer UV-VIS-NIR, & FTIR etc.
- Flat Laser Interferometer
- Auto Collimators Nikon
- Leica Centering Microscope
- CT Measurement up to 1 Micron
- Video Measuring Systems
- Goniophotometer & Integrating Sphere
- Spectrophoto Colorimeter
- Luminance meter



OPTICS CAPABILITIES

- Optical Windows / Mirrors: 3mm to 1200mm
- Spherical and Parabolic Mirrors up to 1000mm
- Off-axis Parabolic Mirrors: 50mm to 600mm
- Lenses 2mm to 300mm
- Domes upto 250mm
- Ultrasonic Glass Machine upto 200mm
- Glass machining up to 1500mm
- Dimension Tolerance upto +/- 0.005mm
- Radius Tolerance upto +/- 0.1%
- Form Error upto $\lambda/20$ & Angle Accuracy upto +/- 5 Sec
- S/D upto 20:10
- DLC Coating upto 240mm
- HR Mirrors; Reflection upto 99.98%
- IR HEAR Coating; Transmission upto 98%
- High Power Laser Coatings upto 100 KW/CM²





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Manufacturing Facility & Corporate Office :

Optics & Allied Engg. Pvt. Ltd.

#9Q, 1st Phase, Jigani Link Road,
Bommasandra Industrial Area,
Bengaluru - 560 099, INDIA.

GROUP OF COMPANIES

Gaggione (France) | **Quadravec** (Canada)

+91 - 80 - 4113 4421

+91 - 9886654729

+91 - 6366462763

Info@opticsindia.com
www.opticsindia.com

