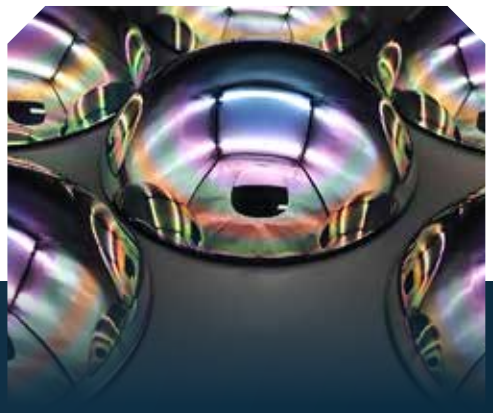
SİVAS OPTİK
Malzemeleri A.Ş.



OPTICAL PRODUCTS CATALOGUE

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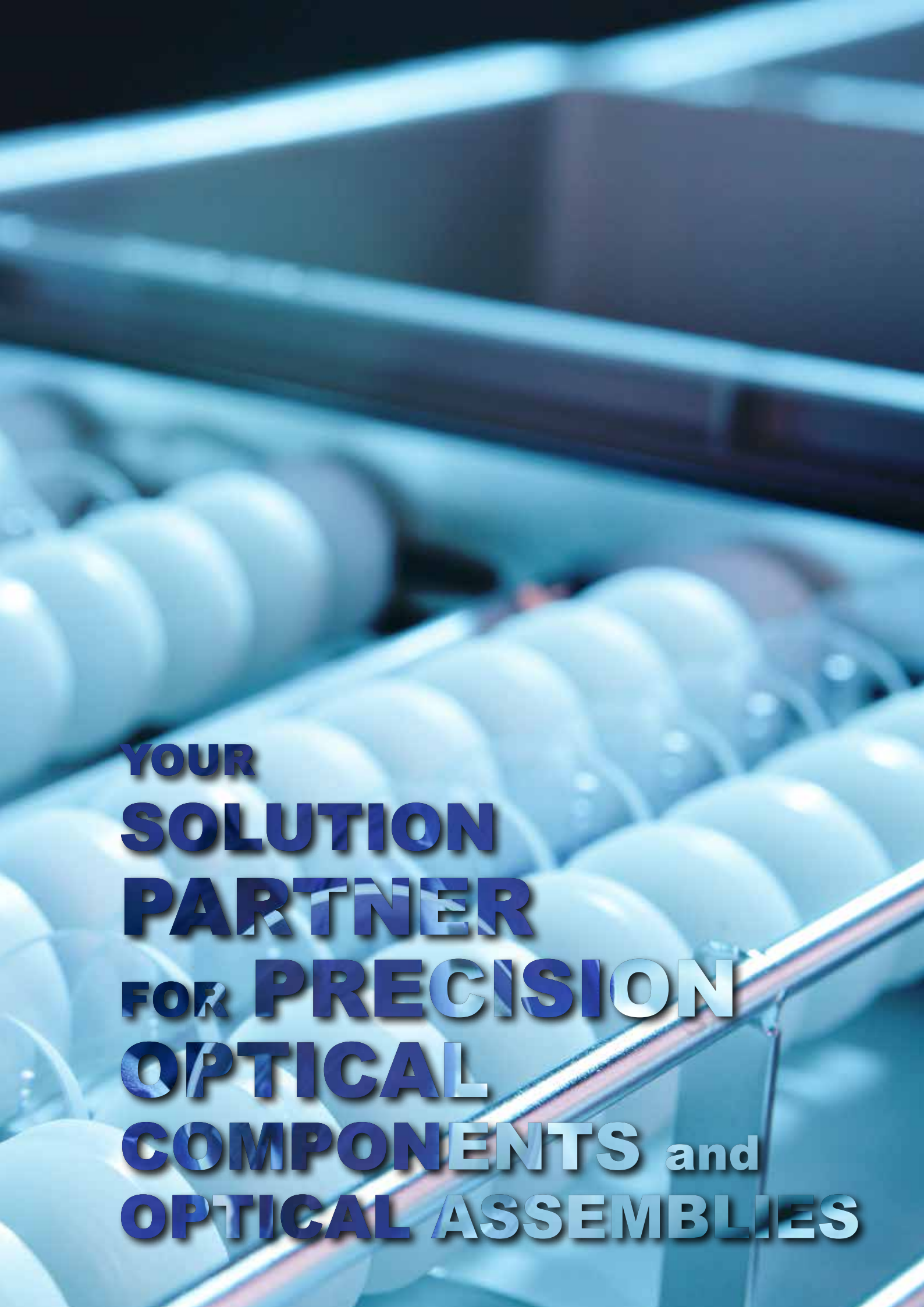
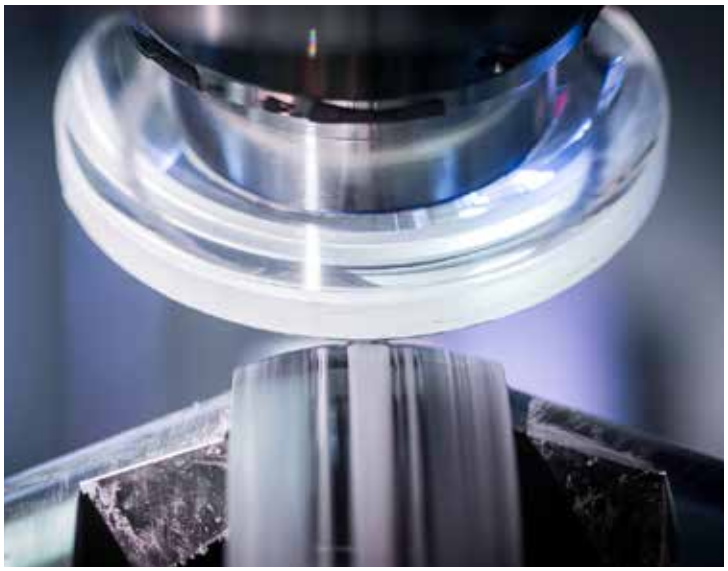

YOUR
SOLUTION
PARTNER
FOR PRECISION
OPTICAL
COMPONENTS and
OPTICAL ASSEMBLIES

ABOUT US



SİVAS OPTİK
Malzemeleri A.Ş.

Sivas Optik Malzemeleri was established in 2014 and operates in the precision optics sector.

Our company, which produces precision optics, thin film coating and precision mechanics in an area of 5.000 m2 in Sivas Organized Industrial Zone, has the ability and equipment to produce prototypes and mass production of all optical systems from the design stage.

At the forefront of precision and innovation, Sivas Optic is a leading technology company specializing in the design, development, and production of high-performance optical systems. Established with the vision of becoming a key player in Türkiye's advanced manufacturing ecosystem, our company focuses exclusively on optical technologies used in defense, aerospace, industrial, and research applications.

With a team of highly qualified engineers, physicists, and skilled technicians, we offer end-to-end solutions from concept to final product — including lens design, optical assembly, coating, and system integration. Our in-house capabilities allow us to meet the most demanding optical requirements with exceptional accuracy and reliability.

Committed to national technological advancement and global competitiveness, we operate under strict quality standards and continually invest in R&D to push the boundaries of what optics can achieve.

At Sivas Optic, we don't just produce optics — we engineer clarity, precision, and trust.

Capabilities

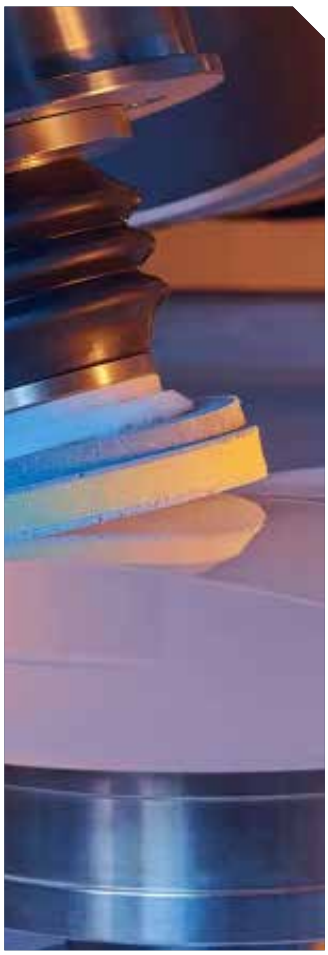
Grinding

The manufacture of precision optics requires multiple grinding steps.

Aselsan Sivas's grinding machines can be equipped with different spindle configurations to support the customer specific process flow. Aselsan Sivas's spindle systems range from mechanical to air bearing based systems utilizing different spindle speeds.

Modular kinematics and computer supported setup make it possible to manufacture the whole spectrum, from flat surfaces and spheres to complex aspherical lenses. Plano grinding machines are used for the production of windows, filters, prisms and periscope prisms. We use ultrasonic grinding device for drilling and discharging of materials such as zerodur.

Polishing



Optical polishing is a widely adopted manufacturing technique for the production process of high precision optical components where minimum defect and roughness values are demanded.

In the polishing process, we can make all optical surfaces with CNC/NC polishing devices. The polishing of the surfaces of high precision optical components with the desired λ/10 precision is carried out with MRF (Magneto-Rheological Finishing) device.

Centering

Aselsan Sivas's centering machines are characterized by high process flexibility with a wide working range from 5 to 300 mm.

Spherical lenses can be clamped using Aselsan Sivas's well established bell clamping technology allowing precise positioning without harming the lens.

Based on an intelligent automated lens positioning system featuring a precise, integrated measuring laser, superior centering results can be achieved for aspherical lenses.

SİVAS OPTİK
Malzemeleri A.Ş.

Optical Thin Film Coating

Thin film optical coatings are applied to optical substrates such as glass to alter or change its optical properties. The coating is applied in extremely thin layers to the surface and the number of coatings and the thickness of the coating is done to effect a specific wavelength of the light.

Thin Film Optical Coatings from Aselsan Sivas are applied by electron beam and ion-assisted electron beam deposition influencing and controlling reflectance, transmittance, absorbance and resistance.

Single Point Diamond Turning

Aselsan Sivas utilizes Diamond Turning to produce a wide range of high precision optical components. Single Point Diamond Turning is a manufacturing technique for producing off-axis parabolic (OAP) mirrors, off-axis elliptical (OAE) mirrors, and other precision metal optical components.

Off-axis focusing mirrors are aberration-free across a broadband wavelength range, making them ideal for use in instrumentation and laser systems including MTF, FLIR, and FTIR, along with IR lasers such as Quantum cascade lasers.

Materials such as germanium, silicon, zinc selenide used in the IR region are processed.

Plastic Injection Method Polycarbonate Lens

The use of precision polymer optics is becoming an increasing necessity today as products demand sophisticated light handling components to achieve desired results.
The best outcomes are achieved when the design team (usually made up of optical and mechanical designers) understands the manufacturing process and works closely with a manufacturer who specializes in this field.

Key advantages that polymer optics have over competing glass solutions include lighter weight; the ability to integrate mechanical and optical features; and the ability to reproduce aspheric, freeform, and other complex geometric surfaces.

Capabilities

Lithography

The objective of Photolithography is to create small structures or features on a silicon wafer or glass using a photoresist(thin photosensitive polymer film). By etching with UV light, Features are made out of photoresist.

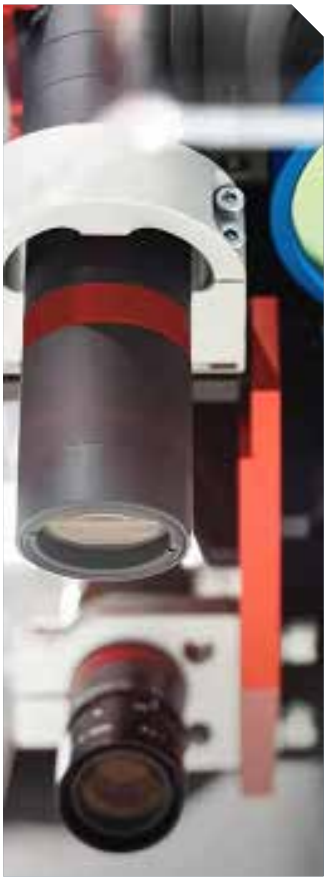
Photolithography is a patterning process in which a photosensitive polymer is selectively exposed to light through a mask, leaving a latent image in the polymer that can then be selectively dissolved to provide patterned access to an underlying substrate.

Bonding & Alignment

Bonding and alignment process is applied with the help of precision alignment devices.

During the process :
Precision Suitable diameters and radius is determined.
The surfaces to be glued are cleaned with the help of alcohol and acetone.

UV adhesive is applied to the appropriate surfaces and transferred to the device.
Fixtures and setups suitable for the project are prepared in the fast doublet device.
The optical centers of the two lenses are found and the UV adhesive is cured.



All optical units produced by Aselsan Sivas are 100% measured with precision measurement devices.

In contrast to tactile measurement technology, optical measurement processes use light for contact-free measurement of the test object's properties. This technology makes use of the physical principles of absorption and reflection to capture the properties of whole surfaces and not just individual measuring points.

Magneto Rheological Finishing (MRF)

Magnetorheological finishing (MRF) is a patented deterministic lens surface finishing process that improves the form finish of precision optical components.

This technique enables us to control optical polishing with a greater degree of precision than conventional lap polishing. These complement existing polishing capabilities for surface correction when enhanced precision is required to produce complex optics.

Other Capabilities

- Processing up to 5mm-500mm diameter,
- Window, filter and prism production,
- Spherical and aspherical visible zone lens production,
- Spherical, aspherical, diffractive, plano and free from infrared zone production,
- Production of polycarbonate lenses by plastic injection method Ultraviolet (UV), visible (VIS) and infrared (IR) AR, HR, band pass filter, short pass filter and long pass filter can be produced.
- DLC Optical coating produced.
- Laser optical thin film coatings are produced.
- Highly capable metrology systems.
- We have all kinds of Optical Glasses, Sapphire, Fused Silica,
- Colored Filter Glass, Germanium, Silicon, ZnSe, ZnS, CaF2 Chalcogenide Glasses, Aluminium, fused silica, zerodur processing capability.

Capabilities

Asphere Manufacturing Specifications

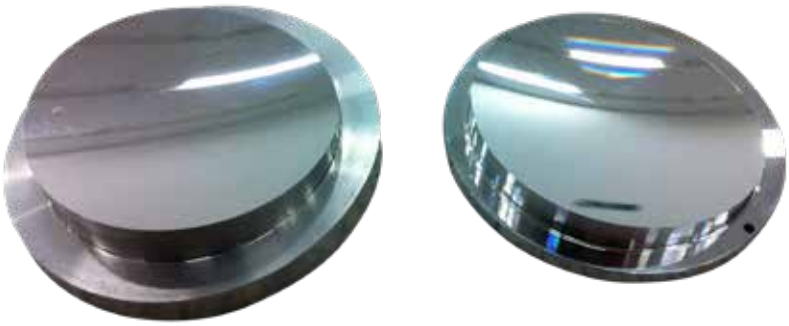
Quality	Standard	Precision	High Precision
Diameter Tolerance	+/- 0.10 mm	+/- 0.05 mm	+/- 0.01 mm
CT Tolerance	+/- 0.10 mm	+/- 0.05 mm	+/- 0.02 mm
Power	5 fr	3 fr	1 fr
Irregularity (PV)	0.80 µm	0.50 µm	0.20 µm
Surface Roughness (Rq)	3 nm	1.5 nm	1 nm
Scratch-Dig	60-40	40-20	10-5

Window Manufacturing Specifications

Quality	Standard	Precision	High Precision
Diameter Tolerance	+/- 0.10 mm	+/- 0.05 mm	+/- 0.01 mm
CT Tolerance	+/- 0.10 mm	+/- 0.05 mm	+/- 0.01 mm
Surface Accuracy	λ/2	λ/10	λ/10
Scratch-Dig	60-40	40-20	10-20
Parallelism	+/- 1 ‘	+/- 10 ‘	+/- 3 ‘

FREEFORM MANUFACTURING SPECIFICATIONS

Quality	Standard	Precision
Diameter Tolerance	+/- 0.10 mm	+/- 0.01 mm
CT Tolerance	+/- 0.10 mm	+/- 0.01 mm
RMS Irregularity (RMSi)	0.8 µm	0.05 µm
Surface Roughness Rq	2.0 nm	1.5 nm



DOME MANUFACTURING SPECIFICATIONS

Quality	Standard	Precision	High Precision
Diameter Tolerance	+/- 0.10 mm	+/- 0.05 mm	+/- 0.01 mm
CT Tolerance	+/- 0.15 mm	+/- 0.05 mm	+/- 0.01 mm
Power	5 fr	3 fr	1 fr
Scratch-Dig	80-50	60-40	20-10

Thin Film Coatings

UV VIS - AR Coating

Short/Long Pass Wave Coating

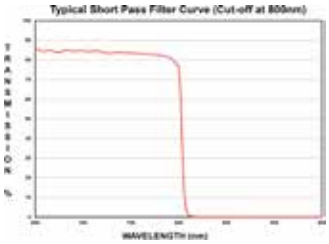
Under 10,000 class clean room conditions, as a result of thin film coating processes by physical evaporation method on optical units, a Transmittance greater than 99.6% and reflection values greater than 98% are obtained. As a result of these high precision productions, all optical units such as lens, prism, window and filter in all regions from ultraviolet wavelength to infrared wavelength have been nationalized. Germanium, Silicon, Zinc Sulphide, Zinc Selenide, Sapphire, Calcium Floride, Fused Silica, Zerodur, Aluminium and many type of glasses can be coated and these materials can be in different geometries such as lens, flat optic, dome, prism and rode. Optical thin films can be coated using e-beam evaporation, thermal evaporation,Coatings can be designed and performed for anti-reflective, reflective, band pass filters, beam-splitters and short/long pass filters.

We provide :
- AR Coatings Transmittance Value For UV-VIS T> 99,6%
- AR Coatings Transmittance Value For IR T> 99,6%
- Metalic Mirrors Surface Reflectance R> 98.0%
- Working Wavelength Range 200nm < **λ** <13000nm

After the processes are finished, the transmittance and reflection values of the optics are measured with the help of the spectrophotometer and FTIR according to the desired values in the documents. The deviation between all samples is 0.5%. After measurement; Tape, eraser and moisture tests are carried out in accordance with the quality standard. Optical elements that pass the test are shipped to the warehouse.

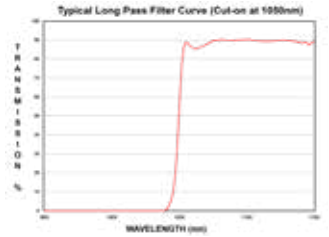
NIR - AR Coating

The Laser Damage Threshold (LDT) Coating



ShortPass Filtre

Short Pass Filter	AOI (Angle of Incidance)	Average Transmission (%)
400 - 900 λ	0° - 10°	98
950 - 1100 λ	0° - 10°	OD4



LongPass Filtre

Long Pass Filter	AOI (Angle of Incidance)	Average Transmission (%)
950 - 1100 λ	0° - 10°	OD4
1150 - 1700 λ	0° - 10°	98.5

MWIR AR COATING ON SAPPHIRE WINDOWS

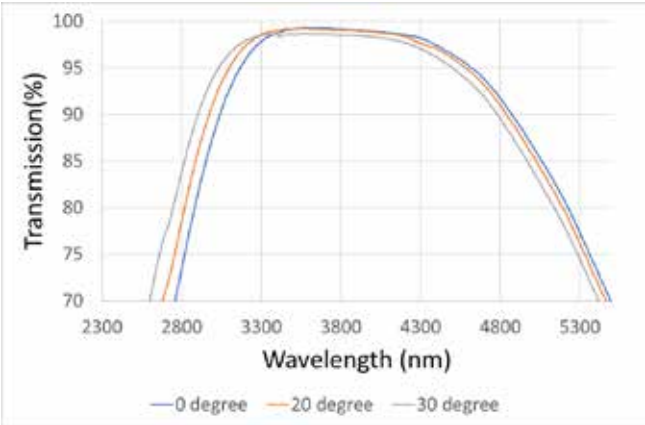
Multi-layer optical coating is deposited on Sapphire substrates up to 300 mm diameter to provide high transmittance and low reflectance at MWIR wavelength range together with high environmental durability.

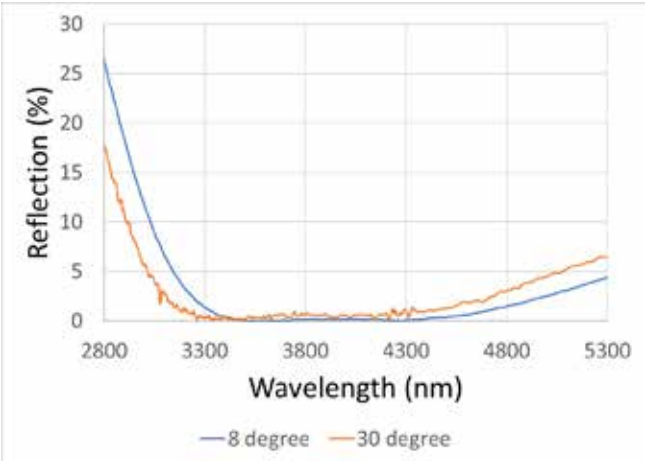
AOI (Angle of Incidince)	% Average Transmission @3.6-4.9 µm
0°	96.8
20°	96.4
30°	95.6

AOI (Angle of Incidince)	% Average Transmission @3.6-4.9 µm
8°	0.7
30°	1.4

Environmental Tests	
MIL-C-48497A 4.5.3.1	Adhesion
MIL-C-48497A 4.5.4.1	Temperature Cycle
MIL-C-48497A 4.5.3.2	Humidity (240 Hours)
MIL-C-48497A 4.5.3.3	Moderate Abrasion

Measurements are taken from double side coated 1 mm thick witness sample.





MWIR HYBRID DIAMOND-LIKE CARBON AR COATING ON SILICON WINDOWS

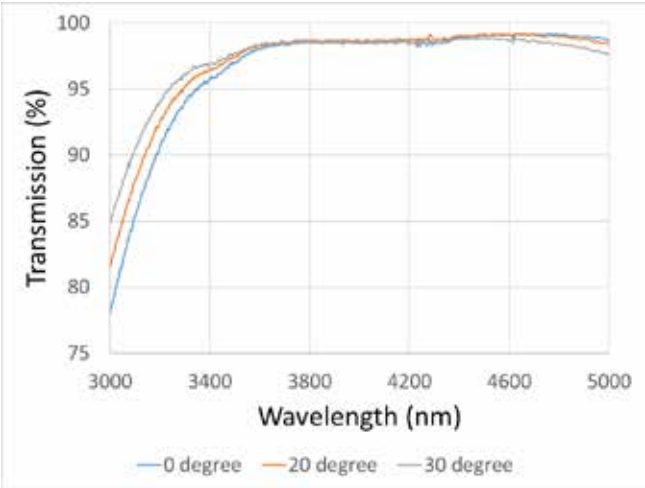
Multi-layer optical coating is deposited on Silicon substrates up to 300 mm diameter to provide high transmittance and low reflectance at MWIR range together with high environmental durability. Inner and outer sides are coated with different recipes to achieve the best performance.

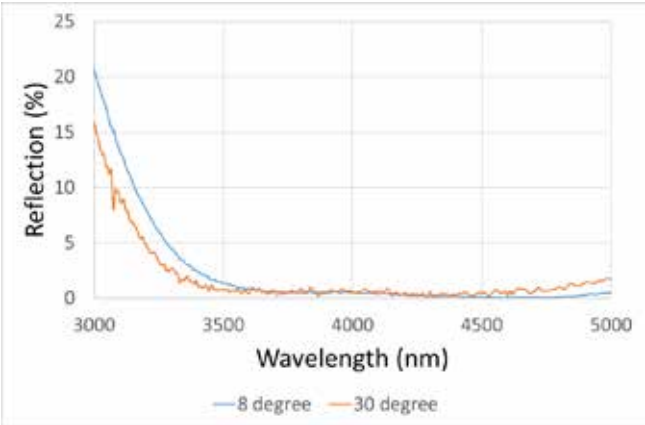
AOI (Angle of Incidince)	% Average Transmission @3.6-4.9 µm
0°	98.5
20°	98.6
30°	98.4

AOI (Angle of Incidince)	% Average Transmission @3.6-4.9 µm
8°	0.5
30°	0.8

Environmental Tests	
MIL-C-48497A 4.5.3.1	Adhesion
MIL-C-48497A 4.5.4.1	Temperature Cycle
MIL-C-48497A 4.5.3.2	Humidity (240 Hours)
MIL-F-48616 4.6.10.1	Severe Abrasion
MIL-F-48616 4.6.10.4	Salt Spray

Measurements are taken from double side coated 1 mm thick witness sample.





Capabilities

MWIR DIAMOND-LIKE CARBON AR COATING ON GERMANIUM WINDOWS

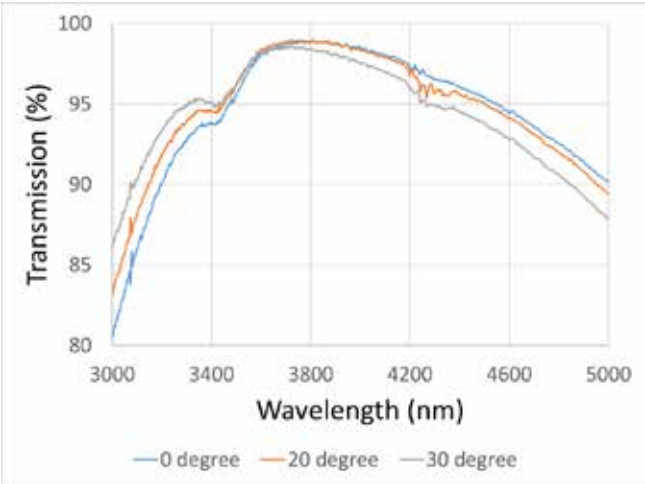
Multi-layer optical coating is deposited on Germanium substrates up to 300 mm diameter to provide high transmittance and low reflectance at MWIR range together with high environmental durability. Inner and outer sides are coated with different recipes to achieve the best performance.

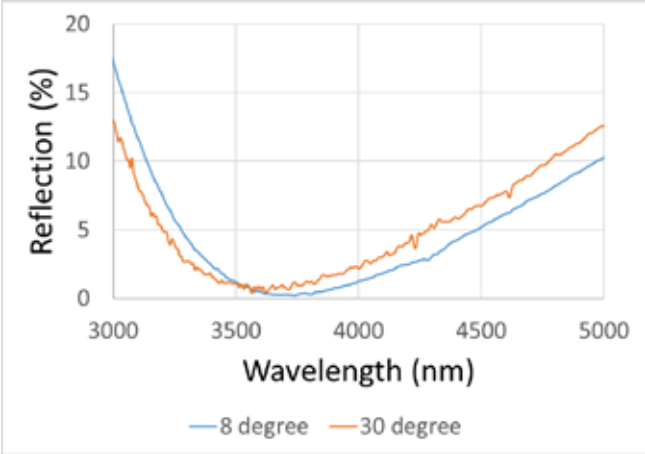
AOI (Angle of Incidince)	% Average Transmission @3.6-4.9 µm
0°	96.2
20°	96.0
30°	95.0

AOI (Angle of Incidince)	% Average Transmission @3.6-4.9 µm
8°	3.8
30°	5.2

Environmental Tests	
MIL-C-48497A 4.5.3.1	Adhesion
MIL-C-48497A 4.5.4.1	Temperature Cycle
MIL-C-48497A 4.5.3.2	Humidity (240 Hours)
MIL-F-48616 4.6.10.1	Severe Abrasion
MIL-F-48616 4.6.10.4	Salt Spray

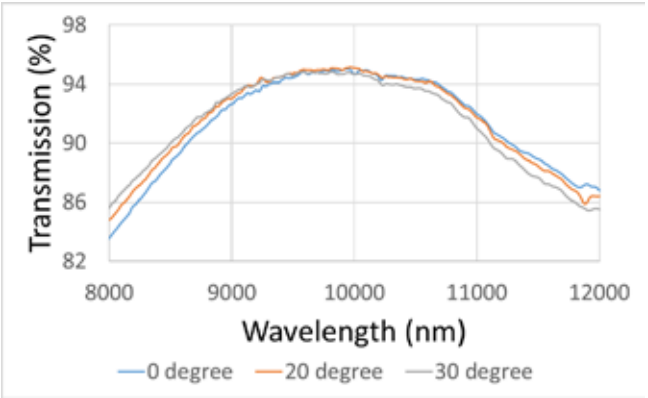
Measurements are taken from double side coated 1 mm thick witness sample.





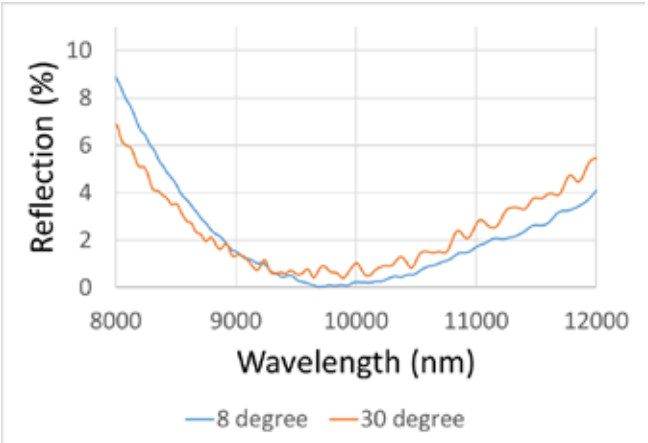
LWIR DIAMOND-LIKE CARBON AR COATING ON GERMANIUM WINDOWS

Multi-layer optical coating is deposited on Germanium substrates up to 300 mm diameter to provide high transmittance and low reflectance at LWIR range together with high environmental durability. Inner and outer sides are coated with different recipes to achieve the best performance.



AOI (Angle of Incidince)	% Average Transmission @8-12 µm
0°	91.2
20°	91.3
30°	91.1

AOI (Angle of Incidince)	% Average Transmission @8-12 µm
8°	2.3
30°	2.6



Environmental Tests	
MIL-C-48497A 4.5.3.1	Adhesion
MIL-C-48497A 4.5.4.1	Temperature Cycle
MIL-C-48497A 4.5.3.2	Humidity (240 Hours)
MIL-F-48616 4.6.10.1	Severe Abrasion
MIL-F-48616 4.6.10.4	Salt Spray

Measurements are taken from double side coated 1 mm thick witness sample.

Capabilities

MWIR AR COATING ON SILICON LENSES

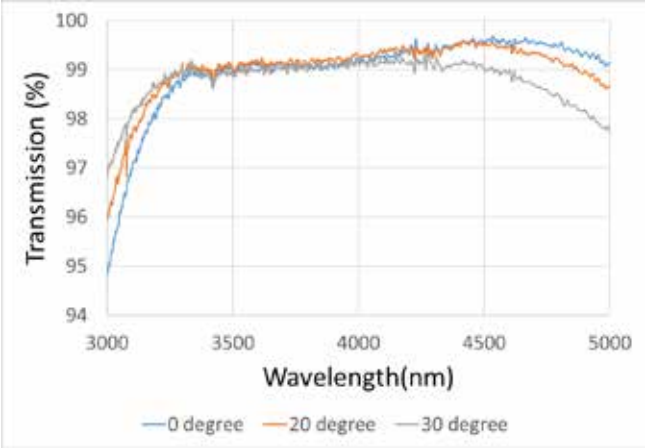
Multi-layer optical coating is deposited on Silicon substrates up to 300 mm diameter to provide high transmittance and low reflectance at MWIR range.

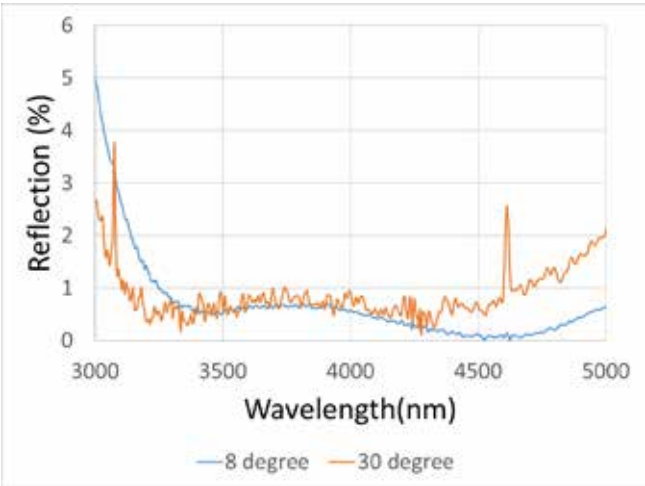
AOI (Angle of Incidince)	% Average Transmission @3.25-4.95 µm
0°	99.0
20°	99.0
30°	98.7

AOI (Angle of Incidince)	% Average Transmission @3.25-4.95 µm
8°	0.6
30°	1.0

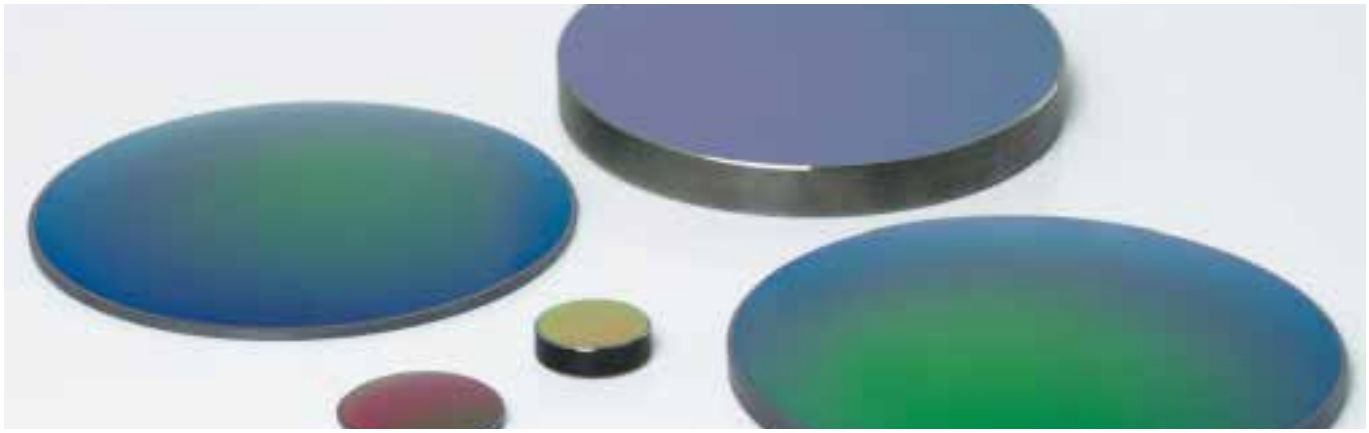
Environmental Tests	
MIL-C-48497A 4.5.3.1	Adhesion
MIL-C-48497A 4.5.4.1	Temperature Cycle
MIL-C-48497A 4.5.3.2	Humidity (24 Hours)
MIL-F-48616 4.6.10.1	Moderate Abrasion
MIL-F-48616 4.6.10.4	

Measurements are taken from double side coated 1 mm thick witness sample.





MWIR AR COATING ON GERMANIUM LENSES



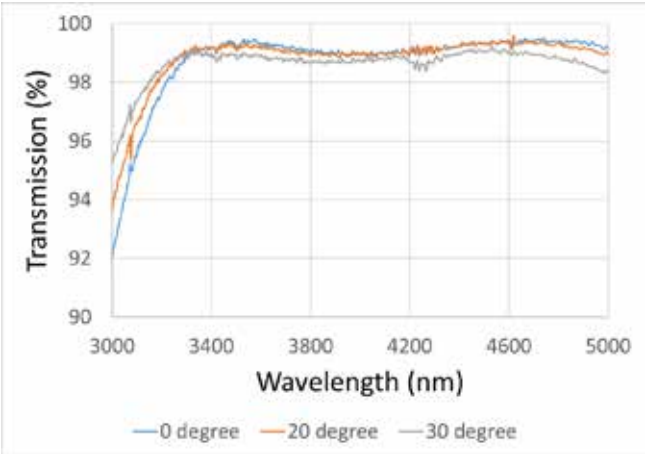
Multi-layer optical coating is deposited on Germanium lenses up to 300 mm diameter to provide high transmittance and low reflectance at MWIR range.

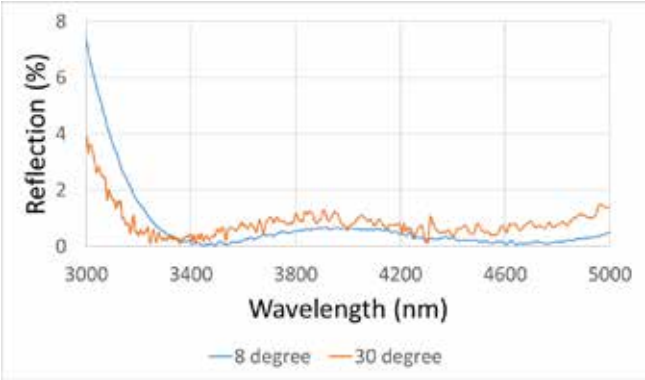
AOI (Angle of Incidince)	% Average Transmission @3.25-4.95 µm
0°	99.0
20°	98.9
30°	98.6

AOI (Angle of Incidince)	% Average Transmission @3.25-4.95 µm
8°	0.5
30°	0.9

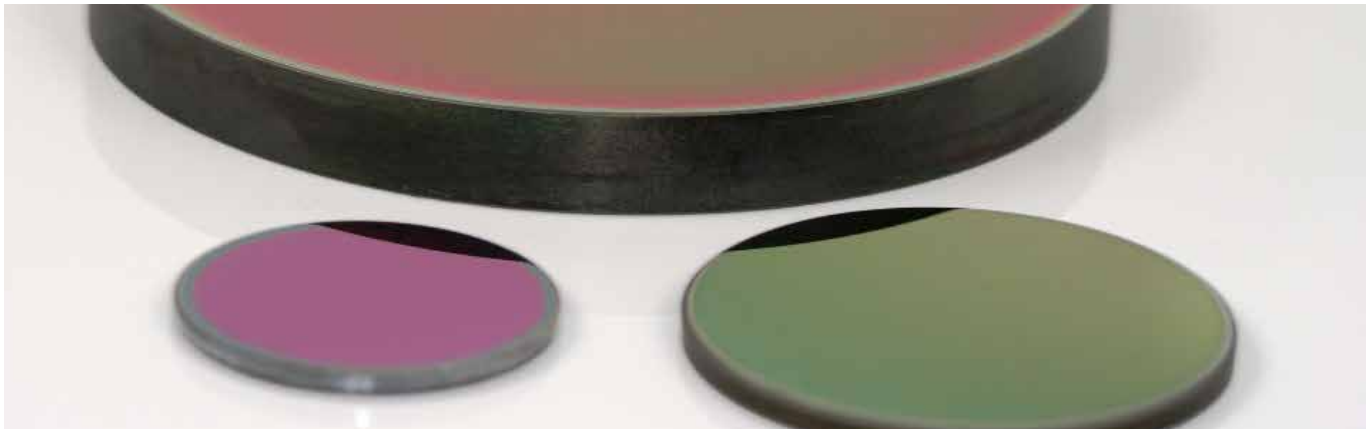
Environmental Tests	
MIL-C-48497A 4.5.3.1	Adhesion
MIL-C-48497A 4.5.4.1	Temperature Cycle
MIL-C-48497A 4.5.3.2	Humidity (24 Hours)
MIL-F-48616 4.6.10.1	Moderate Abrasion
MIL-C-48497A 4.5.4.2	Solubility and Cleanability

Measurements are taken from double side coated 1 mm thick witness sample.





LWIR AR COATING ON GERMANIUM LENSES



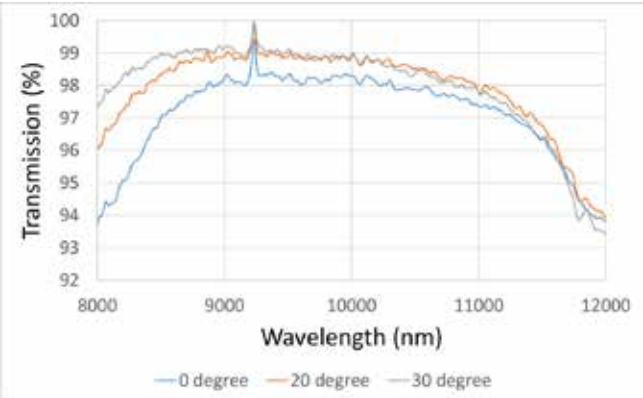
Multi-layer optical coating is deposited on Germanium lenses up to 300 mm diameter to provide high transmittance and low reflectance at LWIR range.

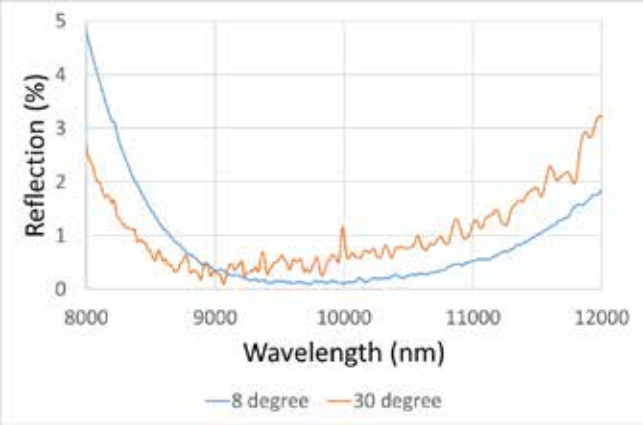
AOI (Angle of Incidince)	% Average Transmission @8-12 µm
0°	97.0
20°	97.7
30°	97.8

AOI (Angle of Incidince)	% Average Transmission @8-12 µm
8°	1.0
30°	1.2

Environmental Tests	
MIL-C-48497A 4.5.3.1	Adhesion
MIL-C-48497A 4.5.4.1	Temperature Cycle
MIL-C-48497A 4.5.3.2	Humidity (24 Hours)
MIL-F-48616 4.6.10.1	Moderate Abrasion
MIL-C-48497A 4.5.4.2	Solubility and Cleanability

Measurements are taken from double side coated 1 mm thick witness sample.





MWIR AR COATING ON ZINC SULPHIDE LENSES

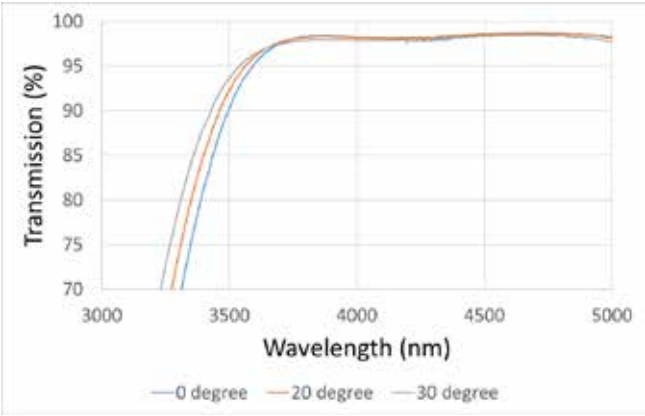
Multi-layer optical coating is deposited on Zinc Sulphide up to 300 mm diameter lenses to provide high transmittance and low reflectance at MWIR range.

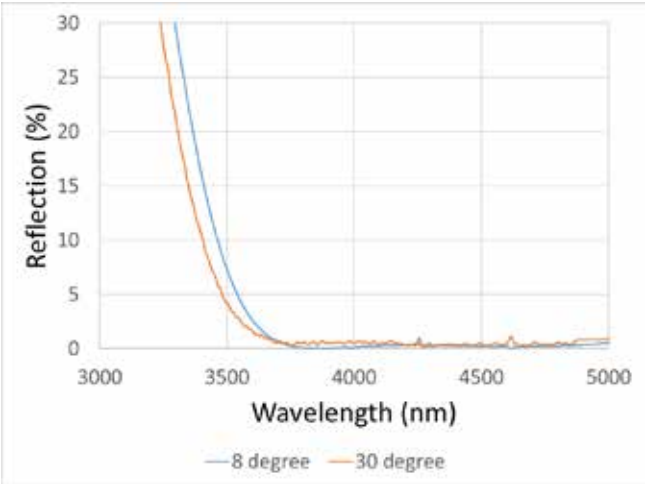
AOI (Angle of Incidince)	% Average Transmission @3.6-4.9 µm
0°	98.0
20°	98.1
30°	97.8

AOI (Angle of Incidince)	% Average Transmission @3.6-4.9 µm
8°	0.6
30°	0.7

Environmental Tests	
MIL-C-48497A 4.5.3.1	Adhesion
MIL-C-48497A 4.5.4.1	Temperature Cycle
MIL-C-48497A 4.5.3.2	Humidity (24 Hours)
MIL-F-48616 4.6.10.1	Moderate Abrasion
MIL-C-48497A 4.5.4.2	Solubility and Cleanability

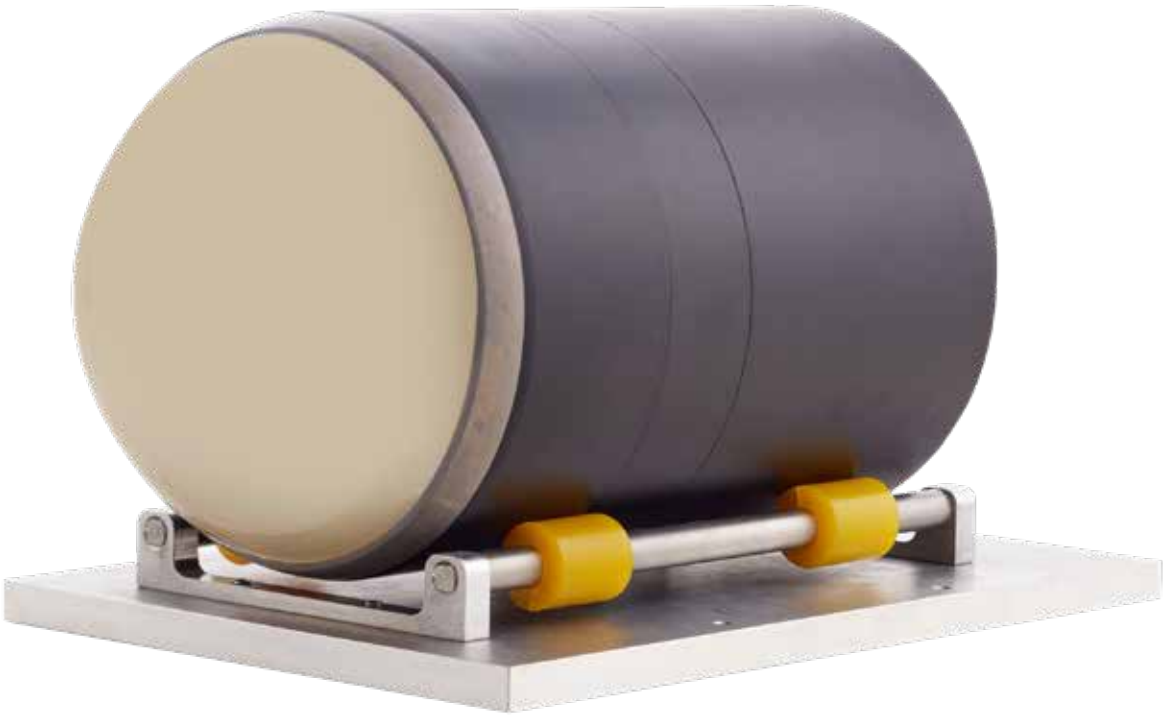
Measurements are taken from double side coated 1 mm thick witness sample.





OPTICAL THIN FILM COATINGS FOR IR DOMES

Domes have high radius of curvature, therefore providing the same optical performance at every part of the dome is challenging. ASELSAN can make coating with good uniformity and high optical transmittance on dome substrates. Also, dome optics are located at the outside of the electro-optical system and therefore high environmental durability should be achieved.



Optical Thin Film Coating on a Typical IIR Seeker

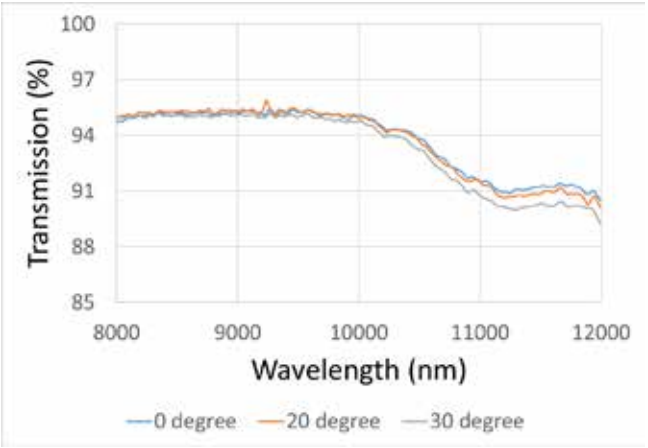
LWIR AR COATING ON ZINC SULPHIDE DOMES

Multi-layer optical coating is deposited on Zinc Sulphide domes up to 200 mm diameter to provide high transmittance and low reflectance at LWIR range together with high environmental durability.

AOI (Angle of Incidince)	% Average Transmission @8-12 µm
0°	93.1
20°	93.0
30°	92.6

Environmental Tests	
MIL-C-48497A 4.5.3.1	Adhesion
MIL-C-48497A 4.5.4.1	Temperature Cycle
MIL-C-48497A 4.5.3.2	Humidity (240 Hours)
MIL-F-48616 4.5.3.3	Moderate Abrasion

Measurements are taken from double side coated 1 mm thick witness sample.



Capabilities

VIS-SWIR-MWIR AR COATING ON SAPPHIRE WINDOWS

Multi-layer optical coating is deposited on Sapphire substrates up to 500 mm diameter to provide high transmittance and low reflectance at VIS, SWIR, LWIR bands.

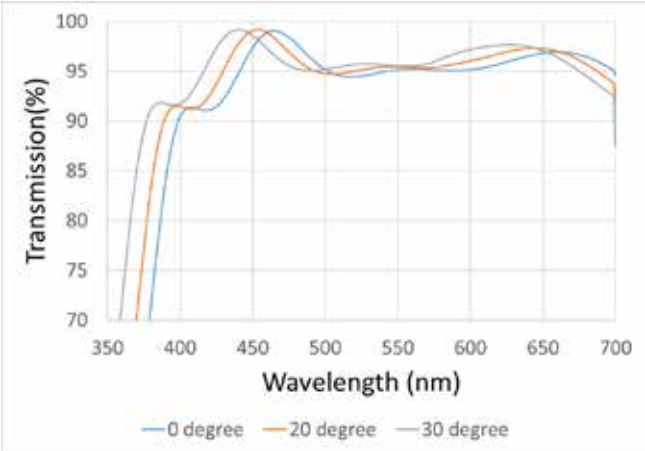
AOI (Angle of Incidince)	% Average Transmission @420-700 nm	% Average Transmission @900-1700 nm	% Average Transmission @3.6-4.9 µm
0°	95.5	93.5	93.8
20°	95.9	93.2	93.6
30°	96.0	93.0	93.2

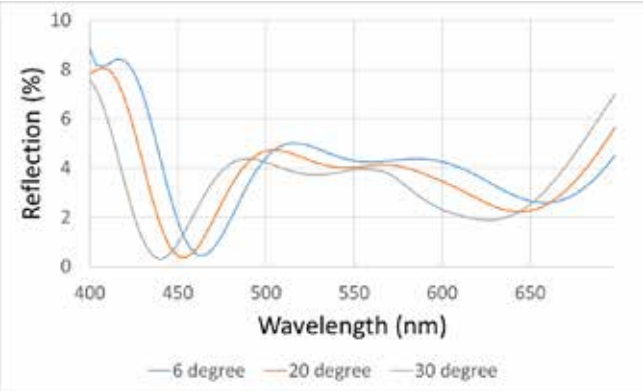
AOI (Angle of Incidince)	% Average Reflection @420-700 nm	% Average Reflection @900-1700 nm	% Average Reflection @3.6-4.9 µm
8°	3.9	6.0	3.4
30°	3.4	6.3	3.8

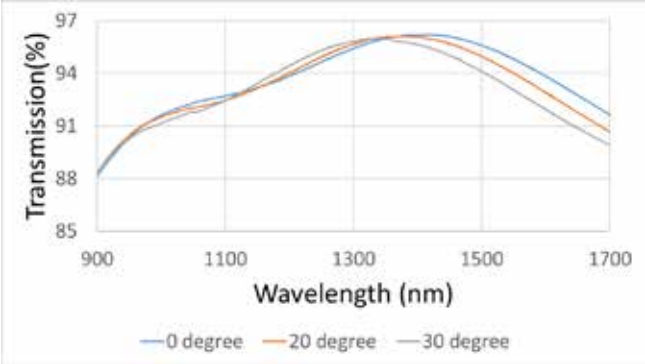
Environmental Tests	
MIL-C-48497A 4.5.3.1	Adhesion
MIL-C-48497A 4.5.4.1	Temperature Cycle
MIL-C-48497A 4.5.3.2	Humidity (24 Hours)
MIL-F-48616 4.5.3.3	Moderate Abrasion

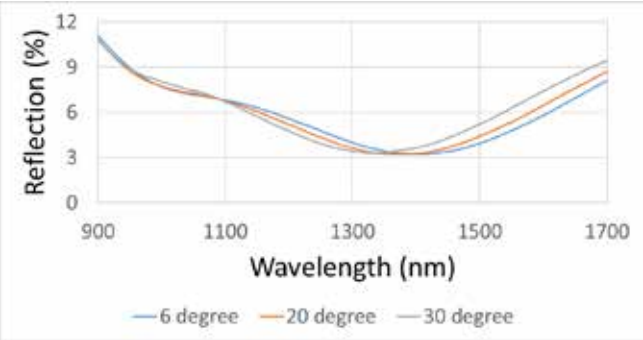
Measurements are taken from double side coated 1 mm thick witness sample.

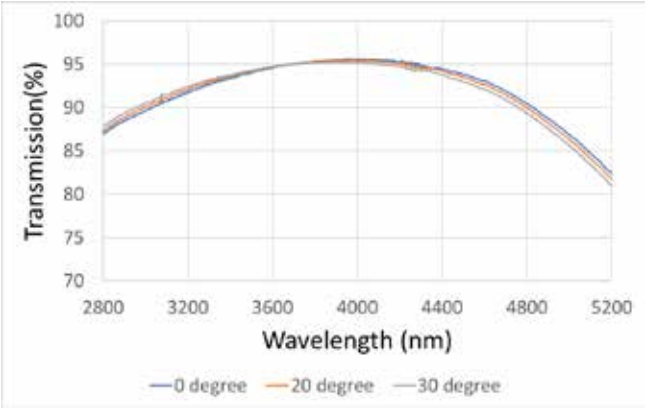
VIS-SWIR-MWIR AR COATING ON SAPPHIRE WINDOWS

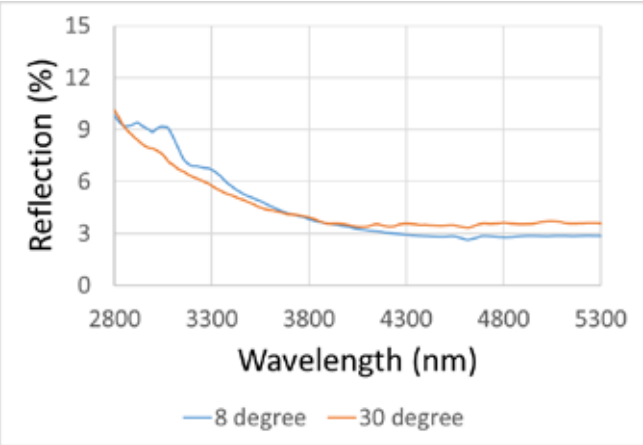












OPTICAL THIN FILM COATINGS FOR MIRRORS

Mirror coatings can be performed in both dielectric multilayers and metallic layers. ASELSAN has the capability to make mirrors with both techniques. ASELSAN metallic mirrors show high scratch resistance, low tarnishing and high environmental durability. Therefore, wide wavelength range reflective coatings can be created.

Zerodur Mirror with High Reflectance Coating

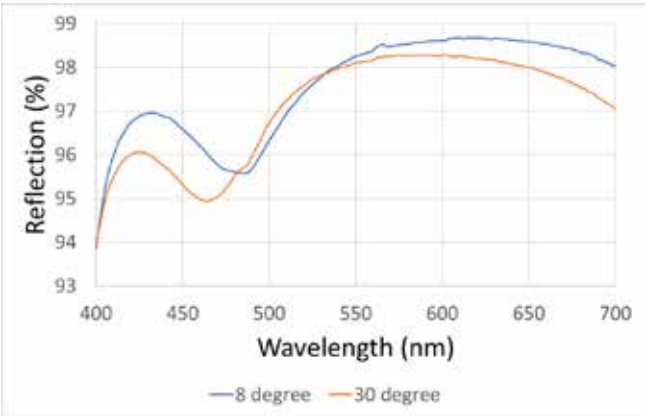
VIS-LWIR HIGH REFLECTANCE COATING ON ALUMINIUM MIRROR

Metallic mirror coating is deposited on Aluminium substrates up to 250 mm diameter to provide high reflectance over a wide wavelength range. Coating shows high adherence, high scratch resistance and low tarnishing.

AOI (Angle of Incidince)	% Average Reflection @0.42-0.7 µm	% Average Reflection @0.7-1.7 µm	% Average Reflection @3.6-4.9 µm	% Average Reflection @8-12 µm
0° - 20°	>97.5	>97.5	>99	>99

Environmental Tests	
MIL-C-48497A 4.5.3.1	Adhesion
MIL-C-48497A 4.5.4.1	Temperature Cycle
MIL-C-48497A 4.5.3.2	Humidity (24 Hours)
MIL-F-48616 4.5.3.3	Moderate Abrasion

Measurements are taken from double side coated 1 mm thick witness sample.

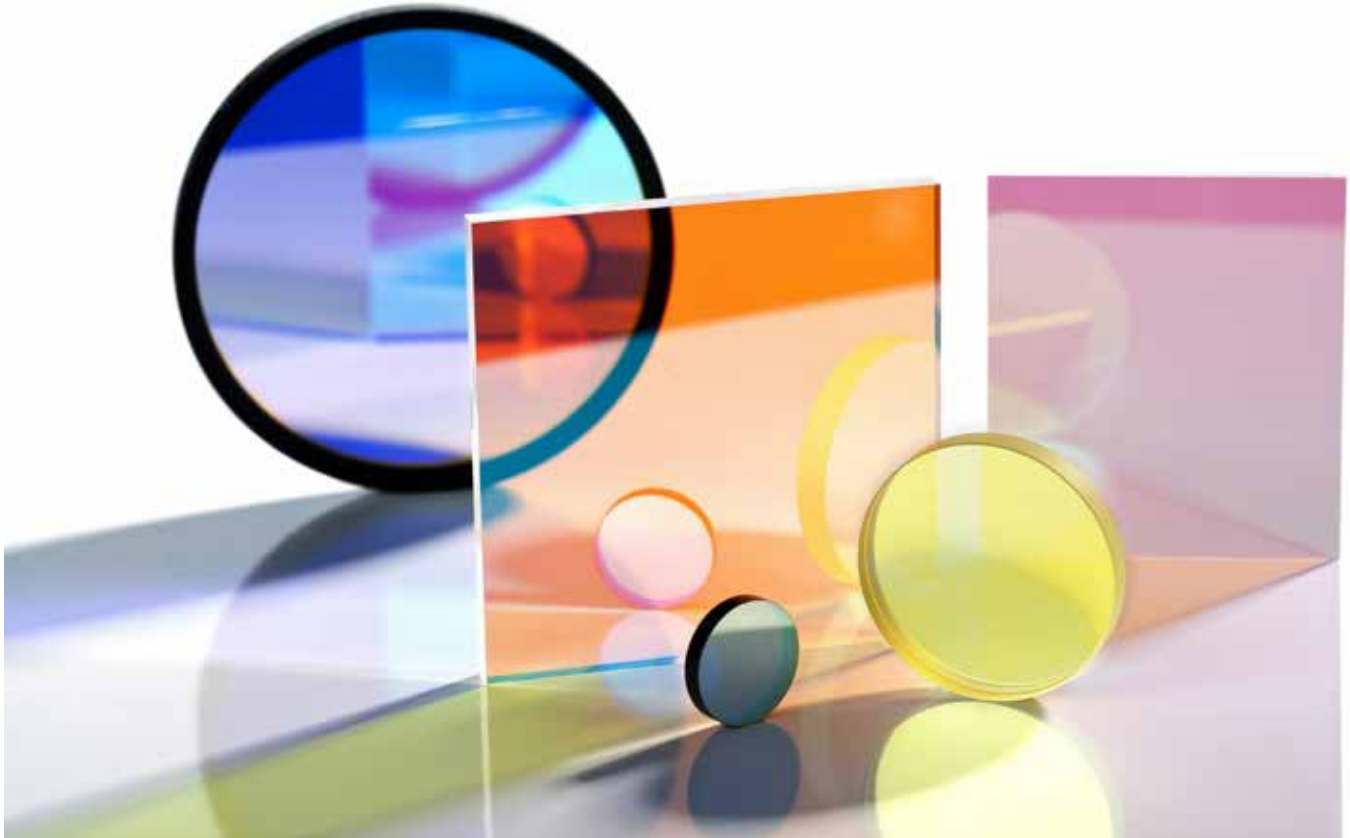


Capabilities

Optical Thin Film Coatings for Filter Applications

Optical filters are used in many electro-optic systems to block the undesired range of energy spectrum. ASELSAN has the capability to design and manufacture optical filters for different kinds of applications. Filters can be produced from UV to MWIR range. Band pass filters can be produced betwen 10 to 100 nm Full Width Half Maximum.

Optical Thin Film Coating Used on ASELSAN's Missile Warning Systems

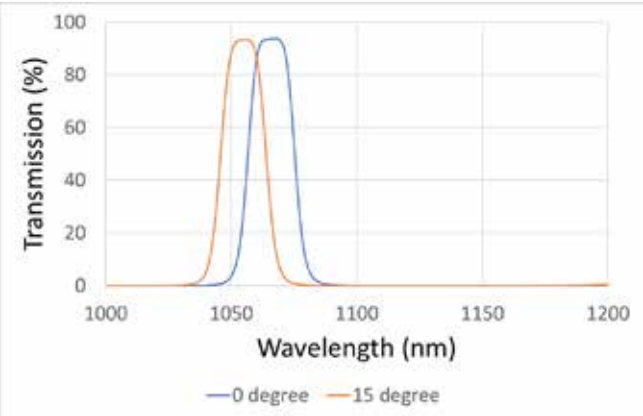


LASER BAND PASS FILTER COATING ON GLASS

Multi-layer optical coating is deposited on glass substrates to provide required Full Width Half Maximum (FWHM), center wavelength, blocking range and level. FWHM is around 20nm and optical density is bigger than 4 between 400-1200nm which outside the transmitted range. Transmittance is higher than 90%.

Environmental Tests	
MIL-C-48497A 4.5.3.1	Adhesion
MIL-C-48497A 4.5.4.1	Temperature Cycle
MIL-C-48497A 4.5.3.2	Humidity (24 Hours)
MIL-F-48616 4.5.3.3	Moderate Abrasion

Measurements are taken from double side coated 1 mm thick witness sample.

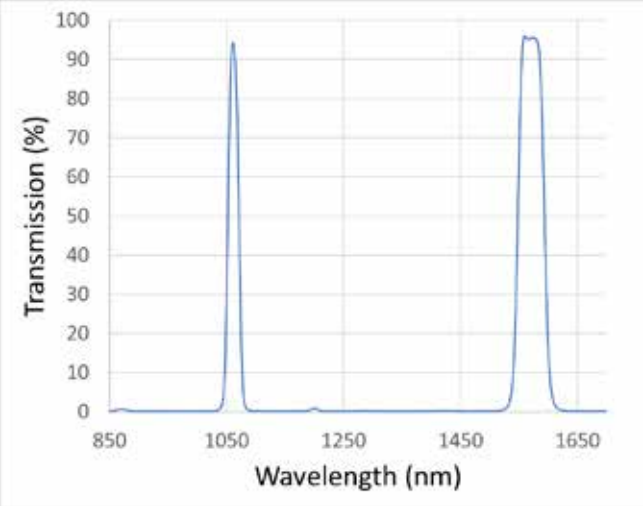


DUAL LASER BAND PASS FILTER COATING ON GLASS

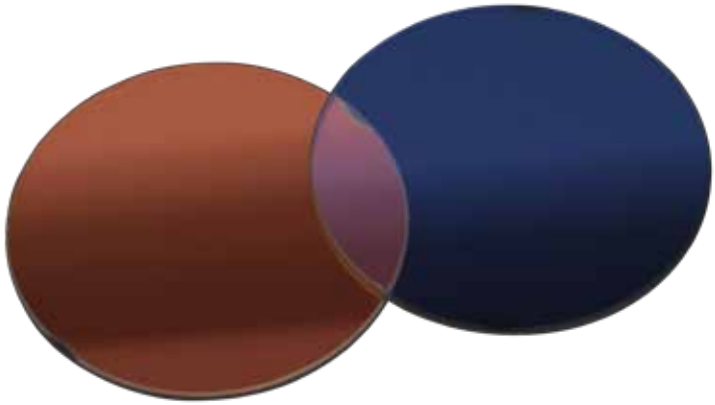
Multi-layer optical coating is deposited on glass substrates to provide required Full Width Half Maximum (FWHM), center wavelength, blocking range and level for dual laser wavelengths. FWHM is around 20nm at 1064nm and 50nm at 1572nm and optical density is bigger than 3 between 400-1700nm which outside the transmitted range. Transmittance is higher than 90% at both wavelengths.

Environmental Tests	
MIL-C-48497A 4.5.3.1	Adhesion
MIL-C-48497A 4.5.4.1	Temperature Cycle
MIL-C-48497A 4.5.3.2	Humidity (24 Hours)
MIL-F-48616 4.5.3.3	Moderate Abrasion

Measurements are taken from double side coated 1 mm thick witness sample.



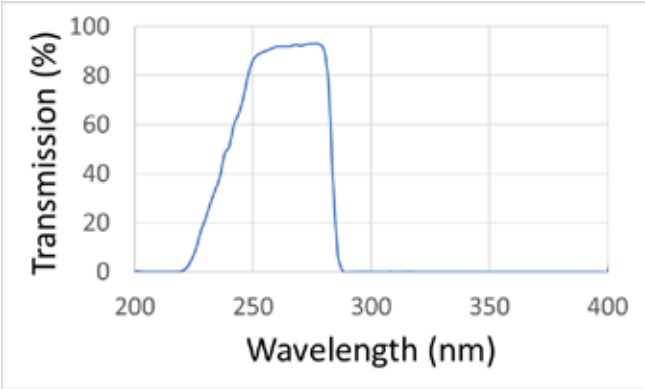
DUAL LASER BAND PASS FILTER COATING ON GLASS

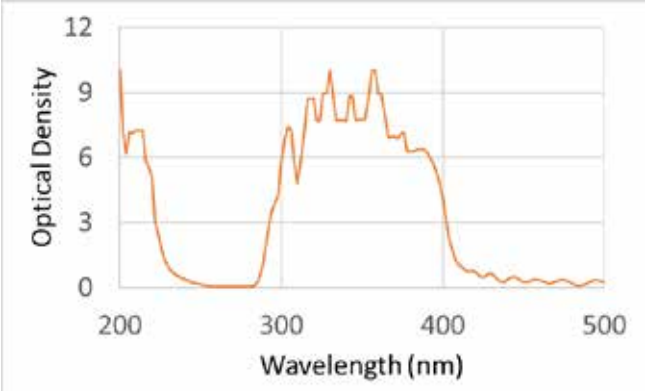


Multi-layer optical coating is deposited on glass substrates to provide high transmittance at UV range and blocking at visible range. Transmittance at UV wavelengths is higher than 90% and optical density is higher than 6 at blocking range.

Environmental Tests	
MIL-C-48497A 4.5.3.1	Adhesion
MIL-C-48497A 4.5.4.1	Temperature Cycle
MIL-C-48497A 4.5.3.2	Humidity (24 Hours)
MIL-F-48616 4.5.3.3	Moderate Abrasion

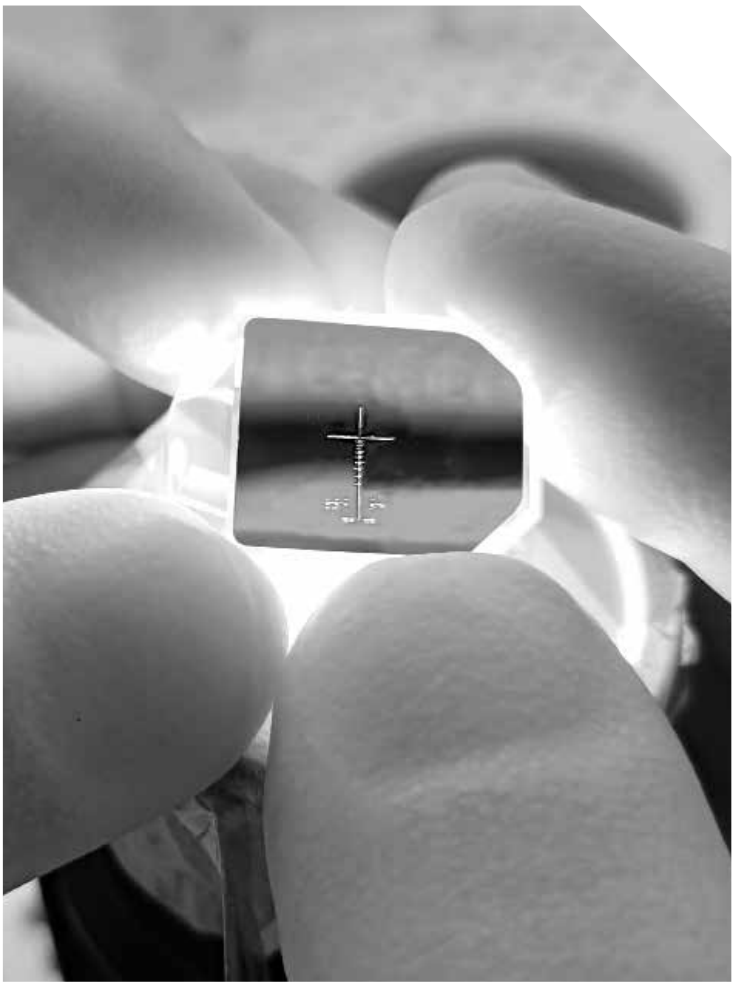
Measurements are taken from double side coated 1 mm thick witness sample.





Pattern Printing

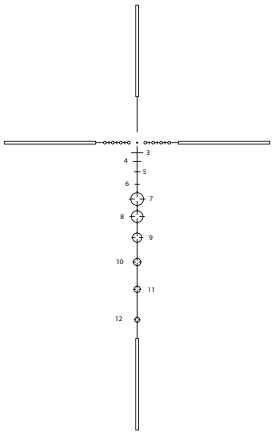
Maskless Photolithography



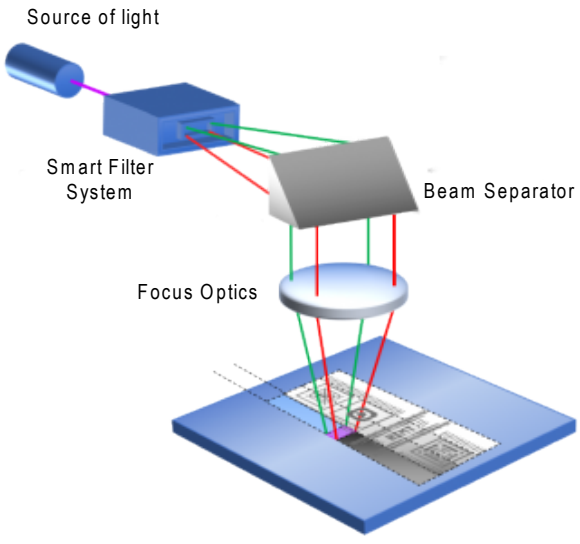
Mass Production

With the maskless photolithography method, patterns are printed on various surfaces up to 15cm x 15cm with a resolution of 1 micron. The maskless photolithography device is capable of multiple processing at one time. Compared to traditional lithography methods, the processing time is quite short thanks to its optical elements.

- Compatible with many photoresists thanks to 405 nm and 385 nm UV light source,
- Patterning without mask, without mask cost thanks to smart filter technology,
- Layered patterning ability,
- Fully automatic, wide (15cm x 15cm) stage with movement capability in X, Y, Z and T axes for patterning of large substrates



Pattern



Single Point Diamond Turning (SPDT)

SPDT

Single-Point Diamond Turning (SPDT) new generation lathes produce high-end optical surface finishes and consistent performance in plastic and metals which producing precision optical components including off-axis parabolic (OAP) mirrors, off-axis elliptical (OAE) mirrors, spherical and aspheric lenses, and flatwork. The SPDT process is also used to machine the optical surface on the inserts used in the molding process.

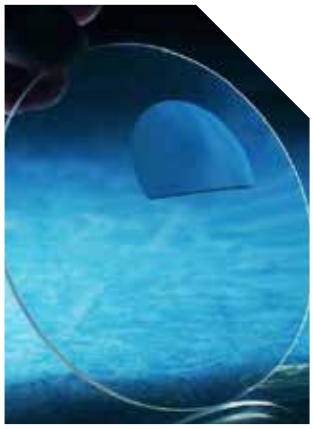
Aselsan Sivas offers build-to-print or custom capabilities to meet your specific application needs whether standard or custom, our expert optical design and diamond turning staff can develop customized solutions incorporating custom sizes and shapes, a variety of metal mirror coatings, or other modifications.

The SPDT process can fabricate small quantities of custom optical prototypes prior to production molding the optics.

Max. diameter (mm)	440
Surface roughness (nm)	1 Sa
Form accuracy (µm)	0,1 PV
Materials	Plastics, Nickel, Brass, Copper, Aluminum, Germanium, Silicone, ZnSe And many other materials.
Surfaces	Aspheric, Spheres, Diffractive, Conic, Fresnel, Toroidal, Array, Plano, Prism
Support for Customers	Modelling of Surface, Lens Designs, Simulotion of optics
Performing Tests	Interferometers and Profilometers measure surface figure.

Plastic Injection

Polycarbonate Lens

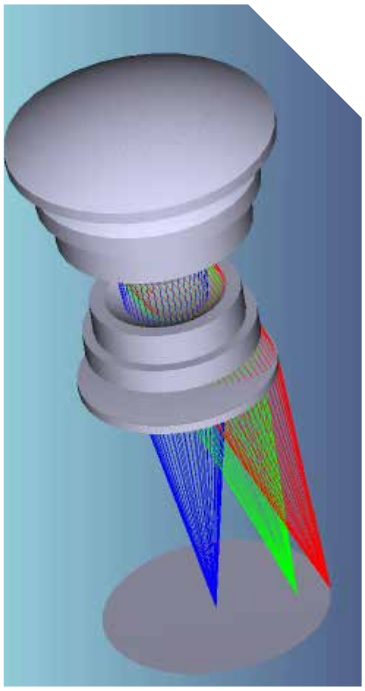


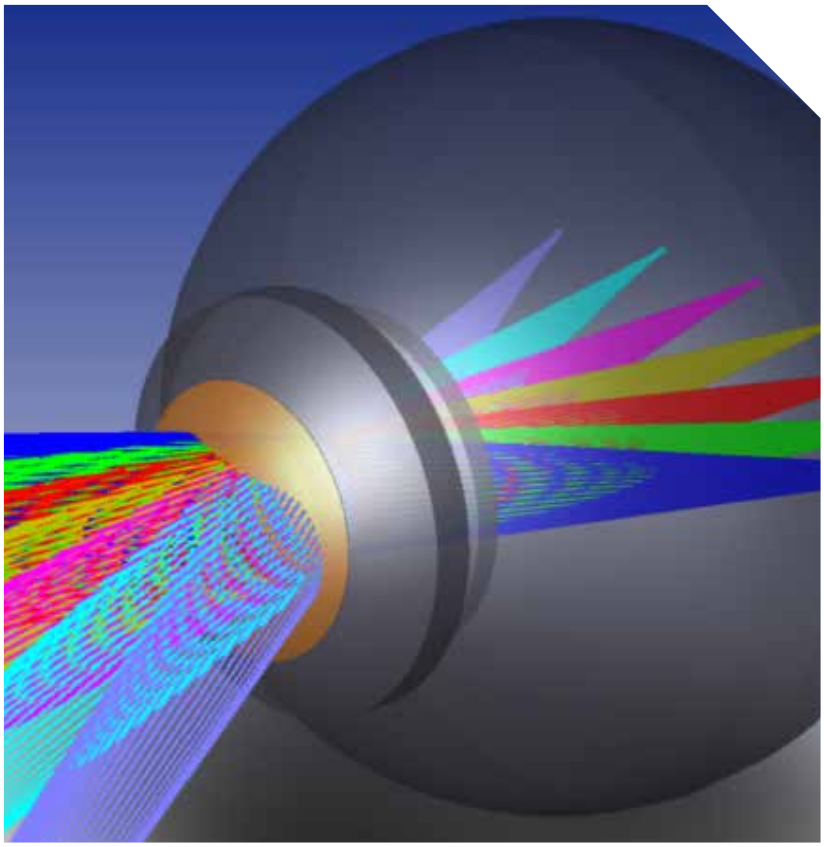
The use of precision polymer optics is becoming an increasing necessity today as products demand sophisticated light handling components to achieve desired results. Polymer optics can be thought of as an important enabling technology allowing the successful development of many types of devices. Key advantages that polymer optics have competing glass solutions include lighter weight; the ability to integrate mechanical and optical features; and the ability to reproduce aspheric, freeform, and other complex geometric surfaces. The unique nature of thermoplastics and of the injection molding process itself demands a disciplined approach during all phases of manufacturing, from component design through prototyping and finally to production. The best outcomes are achieved when the design team (usually made up of optical and mechanical designers) understands the manufacturing process and works closely with a manufacturer who specializes in this field.

System Design

SİVAS OPTİK Malzemeleri A.Ş.

OPTICAL DESIGN
OPTOMECHANICAL DESIGN



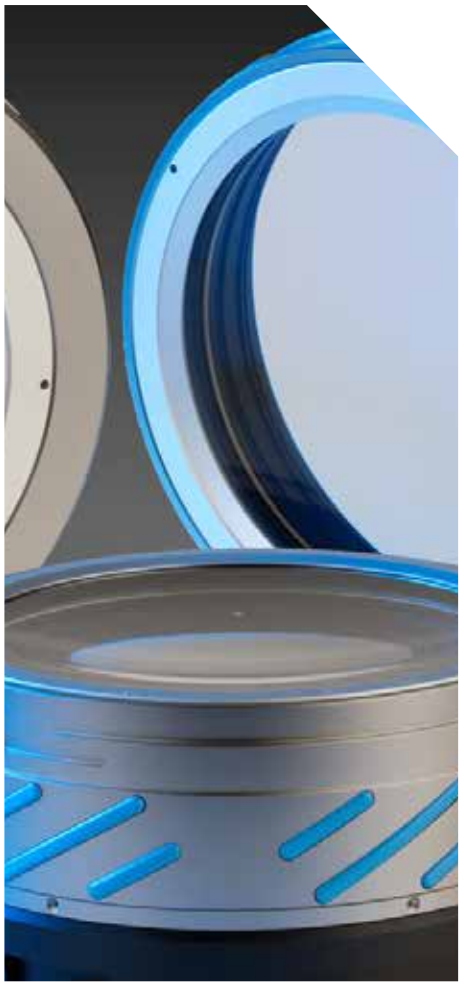


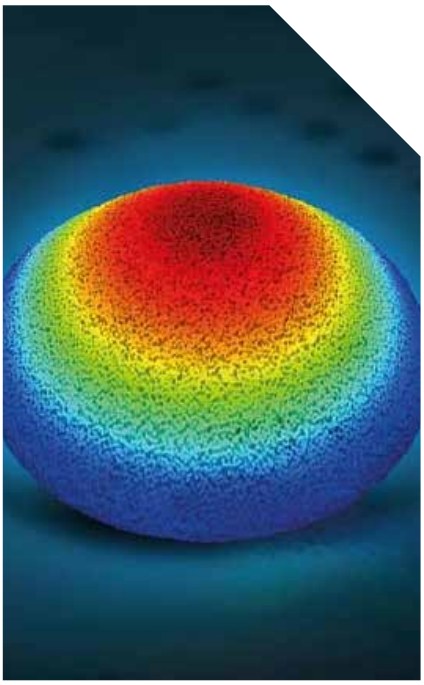
We offer ODM optical design service. Many of our customers need us to provide design support and manufacturing of lenses while retaining their own branding. We offer far customers best suitable reflective or refractive optical design and engineering projects, and lead them through to a finished optical component or opto-mechanical/electro-optical assembly. Our perspective in optical design and opto-mechanical engineering is on manufacturability, and we support that expertise to customer projects from the very first review of the requirement. lf do you need optical components, rapid prototyping, electro-optical or opto-mechanical manufacturing, our experienced team is near you. Projects are only limited by your imagination. Reverse engineering is also one of our businessto perform amendments on designs and etc.

When designing optical components, it's not enough to only make the prototype work. Every optical solution should do more than just meet the specifications and function-it has to meet feasibility criteria for production quantity. When you select a company for optical design, it pays to work with someone who understands not only design but manufacturability. Aselsan Sivas is great in optical lens designs, but most important, we are an optical manufacturer. Our engineers use the right lens design process with the knowledge of manufacturing process and limitations and cost.

Are you an OEM in need of optics design assistance? We can help you optimize your lens design for manufacturability (DFM) and make your lens product more feasible and affordable for production quantities. Our DFM input will cover material selection, tolerance and performance analysis, etc. You'll have a design product with clear specifications and low manufacturing cost for meeting your customer's objectives without over-engineering.

Optical Measurement





These optical inspection machines are built on a platform with at least three axes and at least one objective lens. Using a computer to automatically detect features and calculate measurements from those detected features, vision measuring machines are most often computer-controlled although manual models do exist.

In addition to a machine frame or base with at least three axes and an objective lens, all vision measuring machines have an image detector and a computer. The frame holds the part being measured along with the lens and detector. The detector itself interprets light gathered by the objective lens and transforms it into an electrical signal that the computer then uses to calculate dimensions based on measured edges (e.g. distances, diameters, etc.). The detector is either a charge-coupled device (CCD) or a complementary metal oxide semiconductor (CMOS).

- High resolution surface profilometer
- Laser interferometers
- Spherometers
- Goniometers and digital protractors
- Center thickness measuring systems
- Off-center measurement systems
- Spectrofotometer

Continuous Zoom Motorized Objective

22-275 MM F/5.5, CONTINUOUS ZOOM, MOTORIZED FOCUS MWIR OBJECTIVE

Optical Parameters	
Focal Length	22-275mm
F/#	5.5
Transmission	~76%
Horizontal Field of View(HFOV)	25° - 2°

WFOV(22MM)			
HFOV[deg]	320x240	480x384	640x512
30µ	25		
20µ	16.67	25	
15µ	12.50	18.5	25

NFOV(275MM)			
HFOV[deg]	320x240	480x384	640x512
30µ	2		
20µ	1.33	2	
15µ	1	1.5	2

Mechanical Properties	
Focus Mechanism	Motorized adjustable
Focus Range	50m to ∞
Weight	330gr
Outer Dimensions	Ø70 - 74mm

Environmental Tests	
Operating Temperature	-32°C +50°C
Storage Temperature	-45°C +60°C
Sealing	-
Shock-Vibration	-
Front Lens Coating	Complaint to Military Specifications

15-300 MM F/4, CONTINUOUS ZOOM, MOTORIZED FOCUS MWIR OBJECTIVE

Optical Parameters	
Focal Length	15-300mm
F/#	4
Transmission	~71%
Horizontal Field of View(HFOV)	35° - 1.8°

WFOV(15MM)			
HFOV[deg]	320x240	480x384	640x512
30µ	35.4		
20µ	24	35.4	
15µ	18.1	27	35.4

NFOV(300MM)			
HFOV[deg]	320x240	480x384	640x512
30µ	1.8		
20µ	1.2	1.8	
15µ	0.9	1.3	1.8

Mechanical Properties	
Focus Mechanism	Motorized adjustable
Focus Range	50m to ∞
Weight	1250 gr
Outer Dimensions	Ø70 - 74mm

Environmental Tests	
Operating Temperature	-32°C +50°C
Storage Temperature	-45°C +60°C
Sealing	IP 67-Front Lens
Shock-Vibration	High Durability
Front Lens Coating	Complaint to Military Specifications

Continuous Zoom Motorized Objective

25-150mm f/1.4, motorized focus, continuous zoom LWIR objective

Optical Parameters	
Focal Length	25-150mm
F/#	1.4
Transmission	~75%
Horizontal Field of View(HFOV)	24.15° - 3.8°

NFOV(150mm)				
HFOV[deg]	160x120	320x240	384x288	640x480
50µ	3.05			
38µ	2.31			
35µ	2.13			
30µ	1.82	3.67		
28µ	1.70	3.42		
25µ	1.52	.053	.67	
17µ	1.03	2.07	2.04	4.15

NFOV(25mm)				
HFOV[deg]	160x120	320x240	384x288	640x480
50µ	17.83			
38µ	13.55			
35µ	12.48			
30µ	10.69	1.4		
28µ	9.98	19.97		
25µ	8.91	17.83	1.4	
17µ	6.06	12.12	4.55	24.3

Mechanical Properties	
Focus Mechanism	Motorized adjustable
Focus Range	50m to ∞ (NFOV), 5m to ∞ (WFOV)
Weight	1250 gr
Outer Dimensions	max Ø125 - 135mm

Environmental Tests	
Operating Temperature	-32°C +50°C
Storage Temperature	-45°C +60°C
Sealing	IP 67-Front Lens
Shock-Vibration	DLC Coating
Front Lens Coating	Complaint to Military Specifications

18.6-343 MM F/4.7-5.7, MOTORIZED FOCUS, CONT. ZOOM SWIR OBJECTIVE

Optical Parameters	
Focal Length	2.9-608.6mm
F/#	4.7-5.7
Transmission	~72%
Horizontal Field of View(HFOV)	27.29° - 1.6°

Mechanical Properties	
Focus Mechanism	Motorized adjustable
Focus Range	100m to ∞ (NFOW) 5m to ∞ (WFOW)
Weight	1900 gr
Outer Dimensions	max Ø76 - 130mm

WFOV(25MM)	
HFOV[deg]	640x512
15µ	27.29

NFOV(150MM)	
HFOV[deg]	640x512
15µ	1.6

Environmental Tests	
Operating Temperature	-32°C +50°C
Storage Temperature	-45°C +60°C
Sealing	IP 67-Front Lens
Shock-Vibration	High Durability
Front Lens Coating	Complaint to Military Specifications

Why choose ?

Building a long and successful partnership with our clients is key to what we do. We pride ourselves on our customer support and deliver and maintain long term relationships with our customers. The initial order is just the first step in our new business relationship.

Our experienced team of account managers all hold industry related degrees and are on hand to provide free technical advice via online chat, email or telephone. We have multilingual staff speaking languages and their experience will help guide you through the supply chain process, and they ensure your project is consistently delivered on time and to budget.

Our fully equipped metrology facility, staffed by a dedicated team of trained metrology technicians, the team ensure every product we send out the door meets our customer's demanding specifications. Even if the parts are a basic stock component or a high volume order of precision optics, you can rest assured that your order will be fully qualified and ready to use, straight out of the box. Our quality assurance and metrology teams undergo regular training and review to ensure they are familiar of the latest advances in industry technology.

Standards and Quality

Aselsan Sivas provide ISO9001:2015 for Quality Management Systems and ISO14001:2004 for Environmental Management. Our 2022 review was passed with 100% conformity thanks to the dedication of our ISO staff and we look forward to maintaining that record in the years to come. Our certification can be found on our website or by contacting our team directly.

Quality

Cleaning
Optics are cleaned carefully to minimize damage. Suitable cleaning solutions are used to prevent damage to delicate materials or coatings. Dilute pH neutral acetone is used for cleaning uncoated optical products. Glass cleaning solution is used for optics at risk of damage from acetone. Air blowers and brushes are used for materials unsuitable for solvent cleaning. Laminar flow cabinet is used for assembling and cleaning optical assemblies.

Inspection
All parts control 100% quality assurance checks by experienced optical inspection team. Staff undergo regular training to comply with ISO standards. Parts are inspected against surface quality requirements using appropriate equipment. Scratch/dig requirements are tested against standards. Parts are checked for material imperfections.

Packaging
Optics are carefully packed to prevent damage during delivery. Filters and similar products are vacuum-packed to eliminate humidity degradation. Non-filter products are wrapped in tissue paper and placed in non-abrasive bags. Sharp-edged components are wrapped in soft foam to prevent chipping. Packaging is done immediately after cleaning to prevent contamination. Traceability is maintained, and any issues are addressed promptly.

Delivery
Metrology test data is included with the order. Aselsan Sivas has good relationships with logistics companies for optimal pricing and delivery. Timely delivery is ensured to meet customer schedules.

SİVAS OPTİK
Malzemeleri A.Ş.

Gültepe Mah. 3. Toptancılar Sok. No:2/1 Sivas/Merkez/Türkiye
+9 0346 225 50 32
info@sivasoptik.net