Integrity-Professionalism-Innovation-Win-Win

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Official Accounts

GiAi

GIAI PHOTONICS

Optical application and solution supplier

- **Shenzhen**
  - Flat Optics
- **Anshan**
  - Optical Lenses
  - Optical Prisms
  - Cylindrical Lenses
- **Nanjing**
  - Optical Module
  - Aspherical Lenses

GiAi

Giai Photonics Co.,Ltd

ABOUT US

Main business

Giai Photonicss is engaged in research, development, production and sale of optical component. products are widely used in precision optical equipment, laser processing equipment, Lidar, Biometrics, medical aesthetics devices, camera, and machine vision etc.

Factory ability demonstration

It's one of largest optical factories in China. there are three branch and several r&d centres located in Shenzhen, Anshan and Nanjing, with total area of 40,000 square meters over 500 employee.

Based on the quality principle of "meticulous design, meticulous production, excellence, and sincere service" ,passed ISO9001:2015 quality management system and the IATF16949:2016 standard ,SGS testing to insure the quality standard.

Aim to contribute to customer, innovative, mutual benefit cooperation business philosophy,provide favorable price, on-time delivery, high quality precision optical components to clients.

Company team‘s

CIOE

Funny activities

Women's day gift

Shenzhen factory anniversary celebration travelling

Funny activities

The dragon boat festival gift

Anshan factory anniversary celebration

Sales team group construction

Anshan factory anniversary award presentation

Employee birthday party

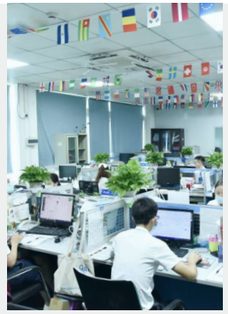
Company Ablity

GiAi GIAI PHOTONICS
Leading supplier of optical components

COMPANY REVIEW


Shenzhen factory

Shenzhen reciption


office


Anshan factory

Anshan reception


Anshan industrial part


Nanjing reciption


Nanjing Production base

PRODUCTION CAPACITY INSURANCE


Coating workshop


Coring machines


Coring machine and process


milling machine and process


CNC cutting workshop


Automatic wiping equipment


Laser cutting machine


Hem grinding workshop


Automatic dispensing equipment


Molded Glass Aspheric Lenses


Single-point diamond turning process


Ion Beam Polishing Equipment


Ultrasonic cleaning workshop


Double sides polishing workshop


CNC engraving workshop


Solidification equipment

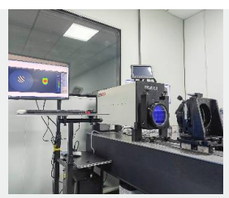

UV marking equipment


Dust-free workshop

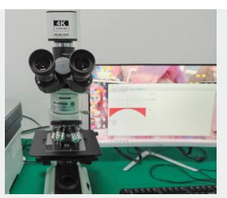
CONTROL QUALITY STRICTLY


Infrared spectrometer


Friction/hardness tester


Digital dynamic interferometer


Taylor profilometer


metallographic microscope


Micro transmittance tester


Helium Leak detector


two-dimensional imager

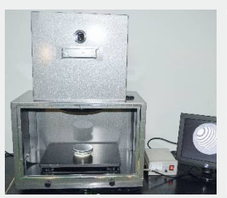

Optical contact Angle tester

Aglient spectrometer


EssentOptics spectrometer


UV/VBI spectrometer


Eccentricity tester


Flat interferometer

Spherical interferometer

Angles testing machine

Instruments for testing lens's focal length

Spectrophotometer

Company History

Nanjing branch factory established 2021

A new 40,000 square metre building has been constructed as a third production facility,

Anshan branch factory established 2012

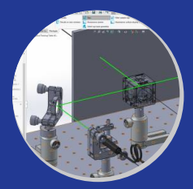
Could supply large number of optical lens, optical prism cylindrical lens

Established in 2008 2008

Focus on development, production and sale of optical components and expanding the application to biometrics

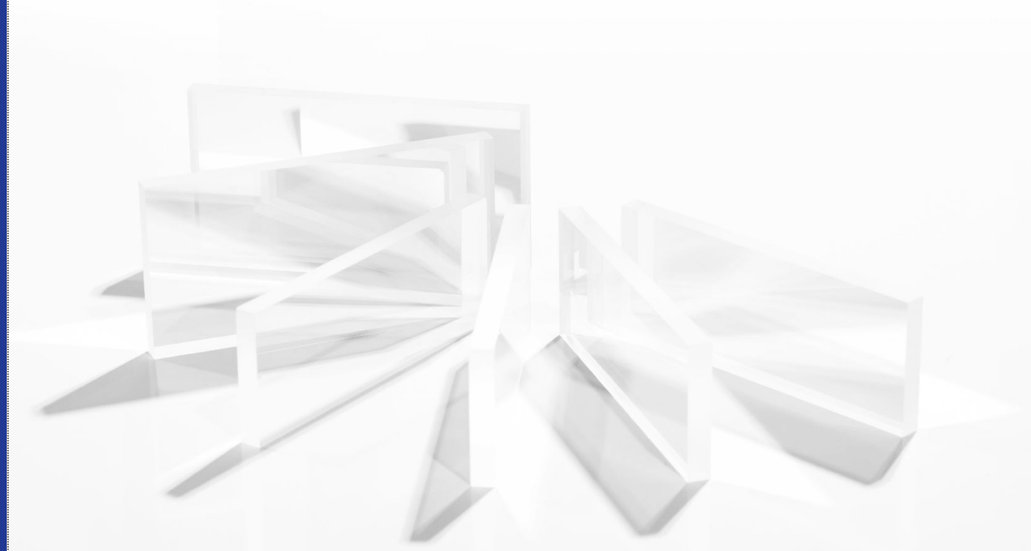
Set up R &D department 2018

Grow up to 400 people, established optical design department



Products supply to worldwide

Catalogue



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Application: quantitative fluorescence pcr,molecular devices&specramax , flow cytometry, penta-fluid cell analyser, endoscopy system, special medical devices, hair removal devices, skin rejuvenation device etc.

Solution Real time fluorescence PCR detector

Application: quantitative real-time PCR is an instrument that adds a fluorescent dye or probe to the polymerase chain reaction (PCR) and detects the entire PCR process in real time by accumulating fluorescent signals. It is widely used in sub-diagnostics, sub-culture research, animal and plant quarantine, and product safety testing.

Principle is laser light or LED light passes through specially designed excitation filters, passes through a reaction cup and excites the fluorescent groups therein,when the fluorescence emitted by the fluorescent groups pass through optical filters which is special designed for it, it will received by photodetector.

Collect data for every reaction cycle, accurately determine the CT value through real-time amplification curve ,which can be used to determine DNA data based on established standard curve for true DNA quantification. PCR combines nuclear amplification with hybridisation, spectroscopic analysis and real-time detection technology intelligently, using fluorescence signals to detect the PCR products.

General medical equipment

Atto425	FAM	HEX	ROX	CY5	CY5.5	CY7
Ex/430	Ex/470	Ex/535	Ex/585	Ex/628	Ex/682	Ex/750
Em/480	Em/515	Em/565	Em/614	Em/670	Em/725	Em/800

Standard 7-channel fluorescent filter

Animal medical equipment

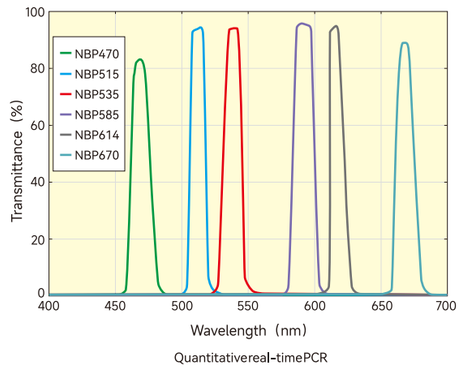
R365/T610	R470/T525	R520/T570
Ex/365	Ex/470	Ex/520
Em/610	Em/525	Em/570

Wavelength: 350nm-800nm
Could match for dichroic mirror and lenses

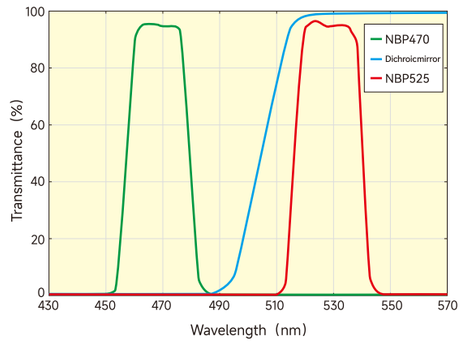
Covered optics

Narrow bandpass filter, dichroic mirror and lenses etc.

Spectrum demonstrate



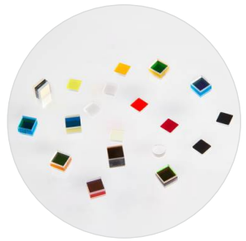
Quantitativereal-timePCR

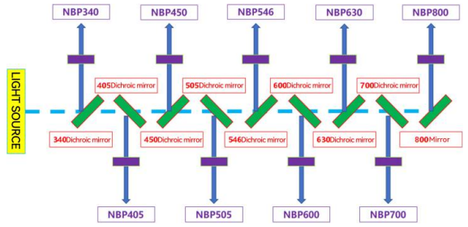


Solution Molecular devices&specramax

•A vitality analyser is also known as a vitality meter, which is an instrument that uses the principle of photoelectric contrast to measure a specific chemical constituent in body fluids. Because of its speed, accuracy and small amount of reagents consumed, it is now widely used in hospitals and healthcare centres at all levels. Its use can greatly enhance the efficiency and profitability of routine vitality testing

•Specramax: a professional instrument for reading& analysing the results of enzyme immunoassay (EIA) experiments, in which the enzyme coupled to an antigen or antibody catalyzes the development of a colour, depth of the colour, the magnitude of the absorbance value, determines the concentration of the antibody or antigen to be tested in the specimen.





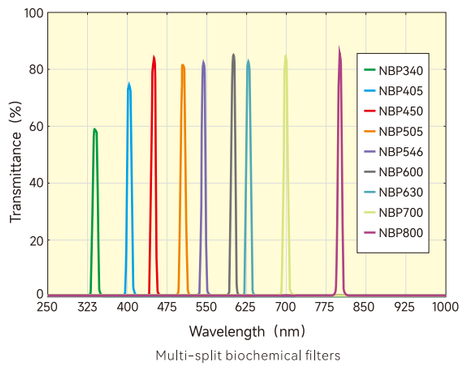
Application wavelength

340nm	380nm	405nm	450nm	492nm
505nm	546nm	578nm	600nm	630nm
660nm	700nm	750nm	800nm	

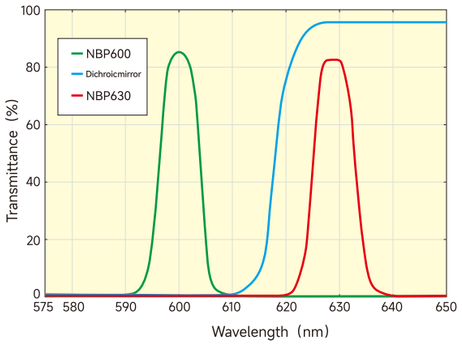
Application categories

Standard -energy matching- multi light spliter

Spectrum demonstrate



Multi-split biochemical filters



Covered optics

Narrow bandpass filter, dichroic mirror, collimating lens ect.

Medical Beauty Equipment

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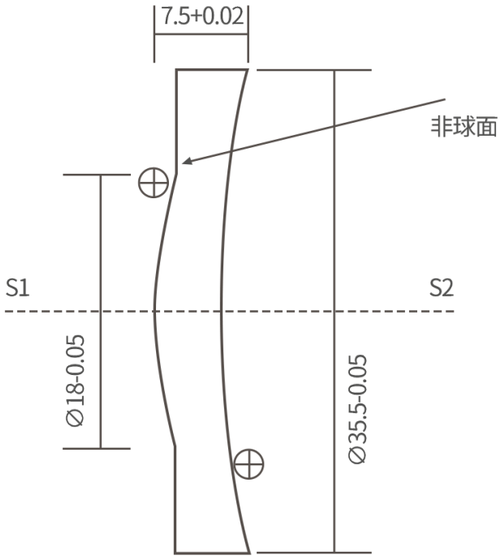
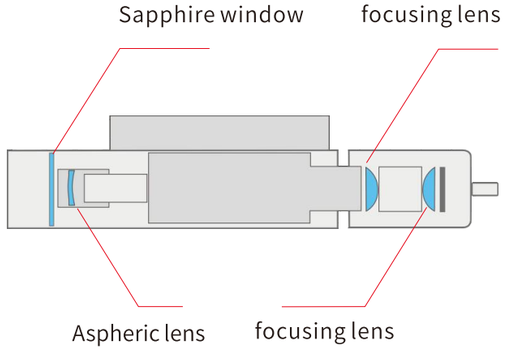
Solution Laser Skin Treatment Machines

Skin laser therapy instrument by flash lamp pump pulsed dye laser and YAG laser clever combination of two laser head independent operation, give full play to their respective roles, through the technology, the system sequentially emits different wavelengths of laser to achieve permanent hair removal, pigmented lesion removal facial and leg phlebectomy as well as vascular lesion removal and other treatments.

Aspheric lens





Product parameters	
Material	D-ZK3
Working wavelength	400-1100nm
Tolerances for center thickness	±0.02~0.1 mm
Surface quality	60-40, 40-20
EFL	78.293mm
Work distance	75.18mm
CA	10mm
Coating	AR

Covered optics

sapphire windows; aspheric lenses; focusing lens

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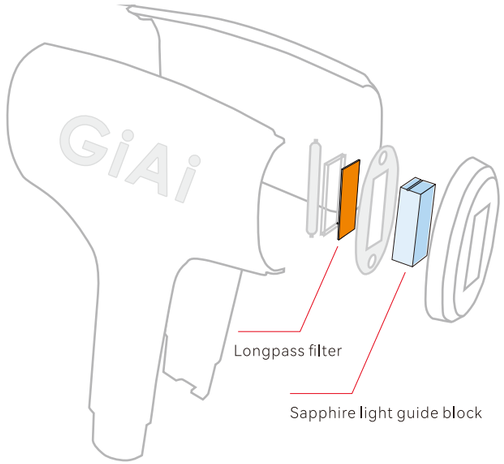
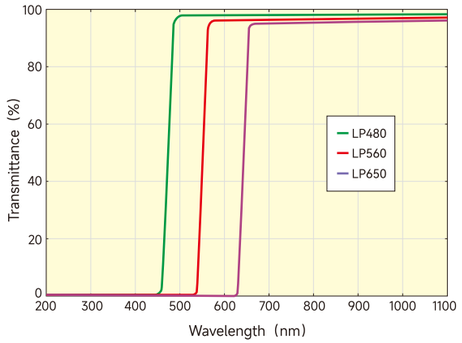
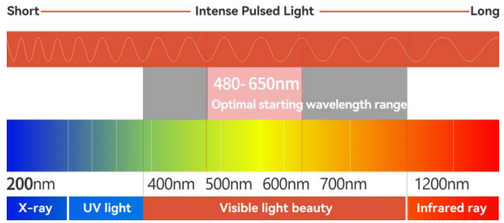
Solution | IPL hair removal devices

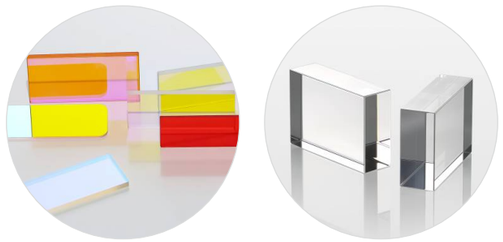
IPL is short name of Intense pulsed light,which is a cosmetic treatment that uses electrical energy to stimulate an inert body in the lamp to create an intense light source, remove UV light,select a therapeutic range standard spectral band ,work on the skin for beauty treatment purpose. when a light realease touch to skin, the black pigment in the capsule absorb energy, resulting in a high temperature and necrosis of the capsule tissue, thereby removing the hair. the difficulty in the design and production of this filters lies is high transmittance, deep optical density.



Spectrum demonstrate







Product parameter	
Coating	Multi-Layer dielectric coating
Optical density	OD2-OD4
Working wavelength range	200-1200nm
Material	BF33,fused silica, sapphire etc
Surface quality	60-40
Environmental testing	MIL-STD-810F

Covered optics

480nm,490nm, 510nm, 520nm, 560nm, 590nm, 650nm, sapphire,etc.

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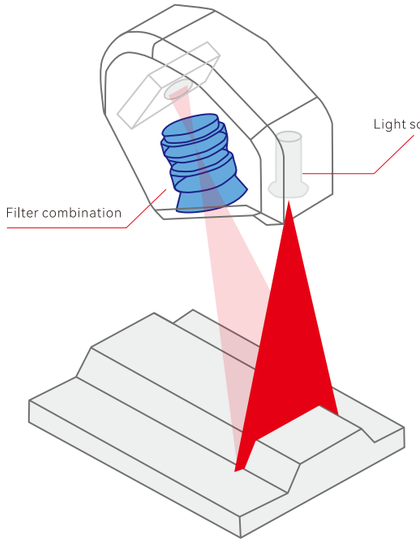
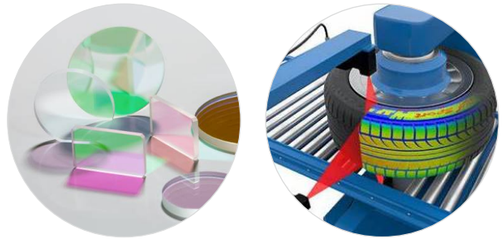
Application: intelligent transport, railway transport, industrial automation, port automation, topographic mapping, forestry surveys, power patrol, smart cities, and high-precision electronic maps.

Solution | Laser sensor

Using the laser triangulation method, the laser is diffused into a line laser through a cylindrical objective lens and then projected on the surface of the target to form diffuse reflection. after imaging the reflected light on the CMOS, the displacement and shape are measured by detecting changes in position and shape.

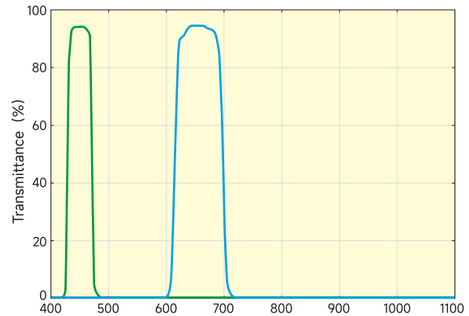




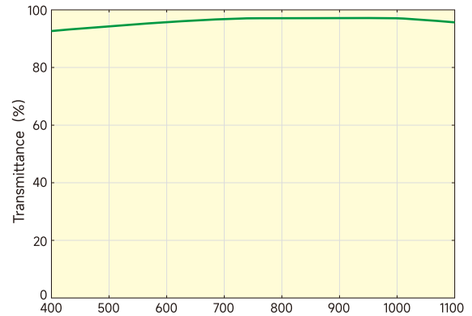
Covered optics

450nm blue light filters, 638nm red light filters, 650-660nm red light filters, 850nm near-infrared filters, 940nm near-infrared filters, dual band-pass filters 450/650nm, fused silica windows ,glass window.

Spectrum demonstrate



Dual bandpass filter 450/650nm

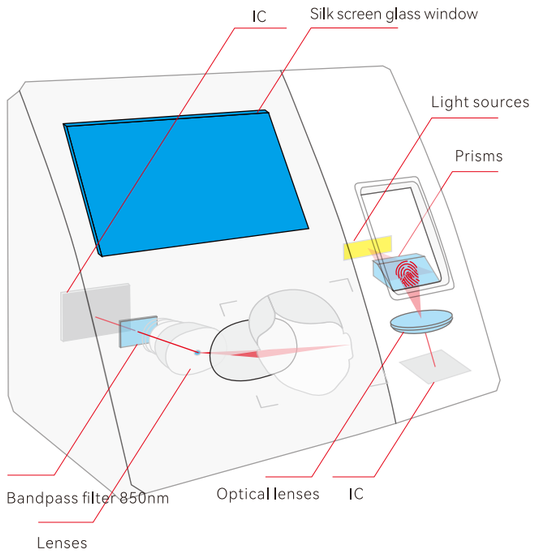


Quartz window

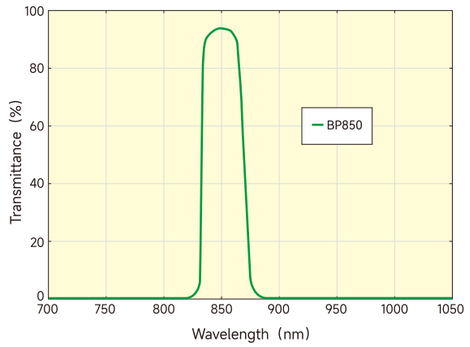
Application: biometrics, security monitoring, intelligent security inspection, telescopes,rifle scope, night vision goggles, hunting cameras, missile engines, satellites, deep space exploration, etc.

Solution Biometric attendance machine

Biometrics includes fingerprint recognition and face recognition. the working principle of fingerprint identification is: use light reflection imaging to identify fingerprints. the working principle of face recognition is: a biometric technology for identification based on human facial feature information. first, use a video camera or a camera to collect images or video streams containing human faces, and automatically detect and track human faces in the images, and then perform a series of related technologies on the detected faces, including face image acquisition, face positioning, face recognition preprocessing, memory storage and comparison recognition, to achieve the purpose of identifying different identities. the face recognition attendance system is a combination of face recognition and attendance system, and uses face recognition as one of the elements of attendance management.



Spectrum demonstrate



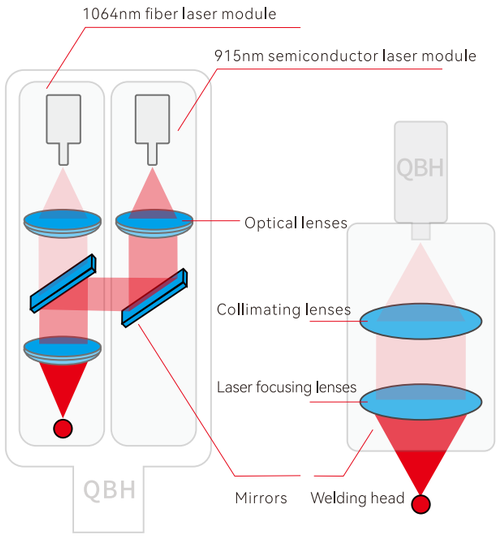
Covered optics

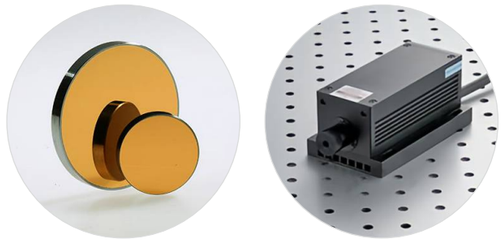
Optical prisms, optical lenses,mirrors, bandpass filters 850nm/940nm, silk screen glass window.

Application: laser marking machines, laser cutting/drilling, laser welding, lasers, etc.

Solution Lasers

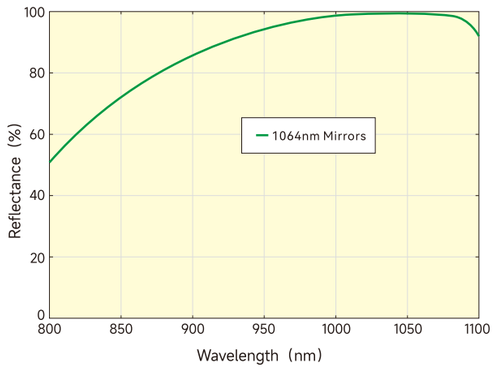
The basic principles of operation are the same for all types of lasers. the essential conditions for generating laser light are particle number inversion and gain greater than loss, so the essential components in the device include the excitation source and the working medium with metastable energy levels. excitation is the excitation of the working medium to an excited state after absorbing external energy, creating conditions for the realization and maintenance of particle population inversion. the excitation methods include optical excitation, electrical excitation, chemical excitation and nuclear energy excitation. thereby realizing light amplification.





Product parameters	
Material	JGS1,monocrystalline silicon
Coating	Protected gold coating, dielectric coating
Surface accuracy	1/4 1/10
Anti-laser power	10JW/M2 10KW/M2
Size	Φ12.7*2.0mm Φ25.4*3.0 Φ50*4.0mm
Single point reflectance	R>99.8%
Surface quality	40-20 20-10

Spectrum demonstrate



Covered optics

Mirrors, optical lenses, glass windows.

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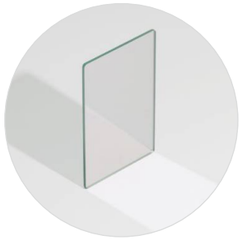
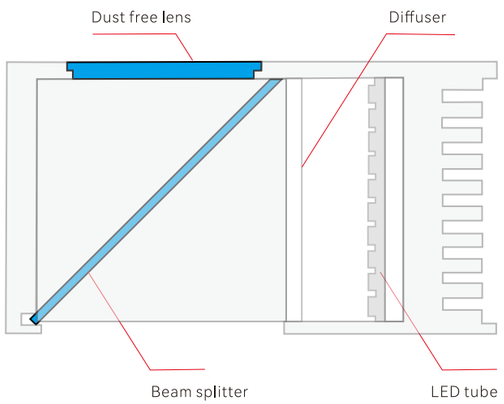
Application: color sorter, microscope, visual inspection, optical fiber end face inspection, optical communication, 3D scanning, lens, coaxial light source and laser mixed use, etc.

Solution Coaxial light source

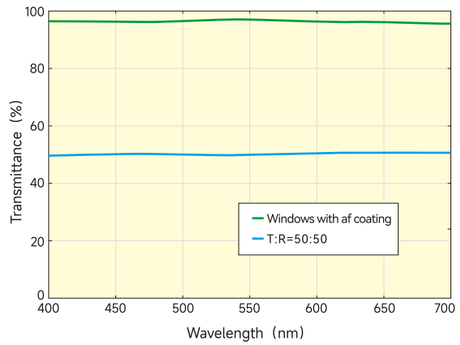
Coaxial light source: The working principle of coaxial light is to install a 45-degree semi-transparent and semi-reflective glass in the coaxial light. arrange high-brightness, high-density LED arrays on the circuit board to form a surface light source. the light emitted by the surface light source passes through the lens and then shines on the semi-transparent and semi-reflective glass. the light first shines on the measured object vertically through total reflection , the light reflected from the measured object passes through the transflective glass vertically upwards and enters the camera. this eliminates reflections and avoids camera reflections in the image. a clear image of the object is presented and captured by the camera for further analysis and processing.

Product	Beam splitter	Windows with AF coating
Material	Quartz glass	K9
Coating	IAD multilayer dielectric hard coating	AR coating
Incident angle	45°incidence	0°incidence
Surface 1	420nm~680nm R<0.5%	420nm~680nm T > 94.5%
Surface 2	420nm~680nm T:R=50%:50%	420nm~680nm T > 98.5%
Surface quality	60-40	60-40





Spectrum demonstrate



Covered optics

Beam splitter, windows with AF coating.

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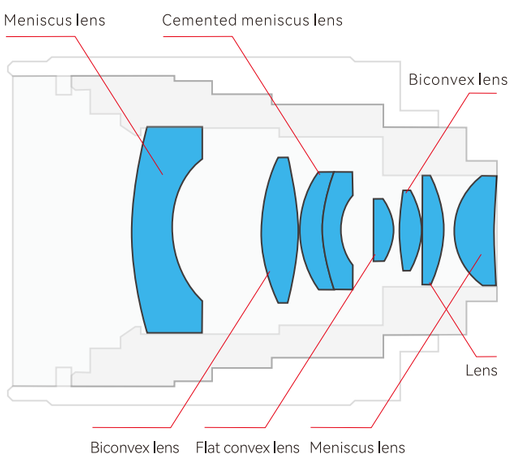
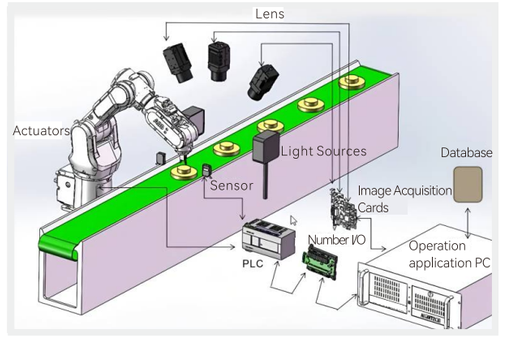
Leading supplier of optical components

Solution Machine vision lens

In the machine vision system, the lens is mainly responsible for beam modulation and signal transmission. the quality of the lens directly affects the overall performance of machine vision. reasonable selection of optical lenses is an important part of the machine vision system. lens types include: standard, telecentric, wide-angle, close-up and long-range, etc. the selection basis is generally based on the camera interface, shooting object distance, shooting range, CCD size, distortion allowable range, magnification, focal length and aperture, etc.





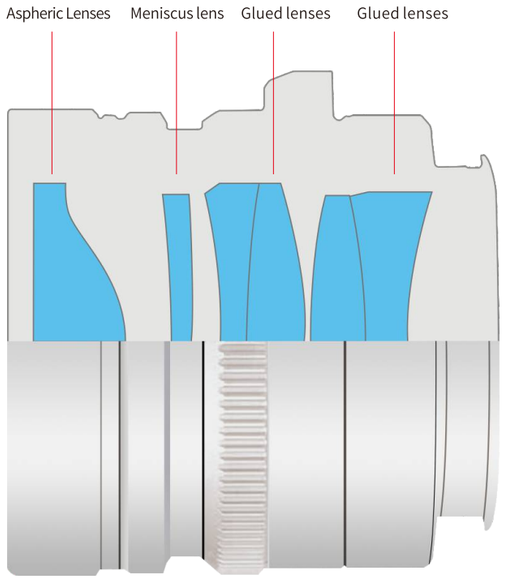
Product parameters	
Material	K9, optical glass, UV quartz
Focus length(f')	±2nm
Dimensional tolerance	-0.02~0.1 mm
Center thickness tolerance	±0.02~0.1mm
Power	1~5
Surface quality	60-40，40-20
Clear aperture	>90%
Coating	Anti-reflection coating

Covered optics

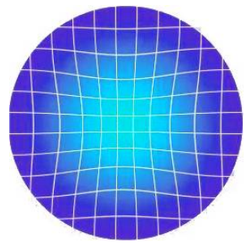
Optical lens group, meniscus lens, biconvex lens, biconcave lens, plano convex lens, plano concave lens, cemented lens, etc.

Solution Fixed focus industrial lenses

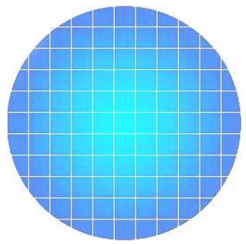
According to whether the focal length can be adjusted, it is divided into two categories: fixed focal length industrial lens and variable focal length industrial lens. Fixed focal length industrial lenses can be further divided into fisheye lenses, short-throw lenses, standard lenses, and telephoto lenses. Industrial cameras are commonly used in fixed focal length lenses, generally adjust the aperture manually, generally do not allow automatic adjustment of the aperture, there are two rings of focus and aperture on the lens, in order to prevent accidental touching, the two rings of the industrial lens have locking screws. The fixed-focus industrial lens is mainly used in assembly line production observation, fixed workpiece appearance scanning and other situations with little change in field of view, such as crimping terminal inspection, instrument panel appearance inspection, etc.



Aspheric advantage



Spherical imaging



Aspherical imaging

Product parameters	
Material	K9
Focal length (f')	±2nm
Dimensional tolerance	-0.02~0.1 mm
Tolerances for center thickness	±0.02~0.1 mm
Power	1~5
Surface quality	60-40, 40-20
Clear aperture	>90%
Coating	AR

Covered optics

Aspheric Lenses, Meniscus lens, Glued lenses.

Application: SLR filters, mobile phone filters, cinema filters, miniature projector,laser projector, 3D cinema projection equipment, AR/VR technology, etc.

Solution SLR accessories

In order to improve the quality of the camera, whether it is shooting people, objects or landscapes, different camera filters will be used. the filters produced by GiAi are divided into three categories: UV filters that play a protective role, CPL filters that make the scenery more textured, ND filters, GND filters, star filters and streak filters and improve the atmosphere of portrait photography black mist filter, kaleidoscope filter. we have cooperated with many important filter brands. at the same time, the company's filter brand GIA has been established for more than 15 years, and has its own tm flagship store.

Light reducing filter parameters

ND grades	Optical density	Optical files	Transmittance
	0	0GRADE	100%
ND2	0.3	1GRADE	50%
ND4	0.6	2GRADE	25%
ND8	0.9	3GRADE	12.50%
ND16	1.2	4GRADE	6.25%
ND32	1.5	5GRADE	3.13%
ND64	1.8	6GRADE	1.56%
ND128	2.1	7GRADE	0.78%
ND256	2.4	8GRADE	0.39%
ND512	2.7	9GRADE	0.20%
ND1024	3.0	10GRADE	0.10%

Covered optics

UV filter,CPL filter,ND filter,VND filter,GND filter,black mist filter,cinema filter,star filter ,streak filter,kaleidoscope filter.

Lens features

B270 material

B270 glass imported from SCHOTT, with stable optical performance, high transmittance in the visible light range and stable light transmission, and it is applicated in filter and lens processing.

Material polishing

GiAi has 15 years experience to ensure the surface accuracy of the lens and no imaging distortion. the lenses feature double-sided protective bevelling for adding aesthetics and comfort.

Non-reflective coating technology

Nano-scale light chain coat technology, no color cast, low reflection. the coat layer is durable, and the imaging is clear and sharp. different gradient values and gradient areas can be customized.

Waterproof coating

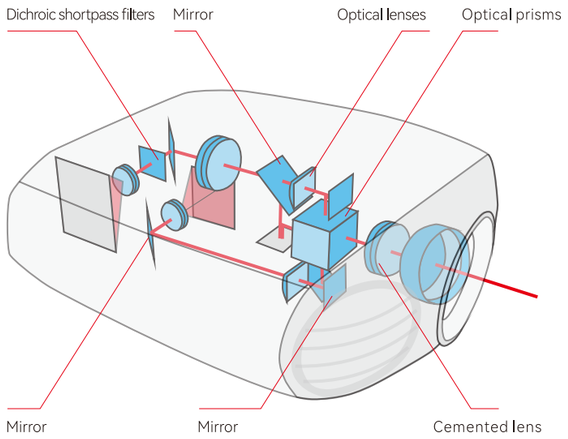
Double-sides are coated with waterproof and oil-proof . the water droplets on the lens will slide off when tilted, leaving no residue and easy to clean.

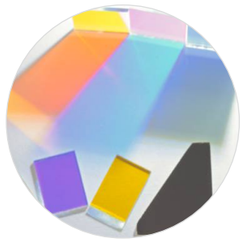
Strict optical inspection standards

Strict quality control system. each batch of products will be inspected for surface accuracy, appearance, and spectrum after coating to ensure good product quality.

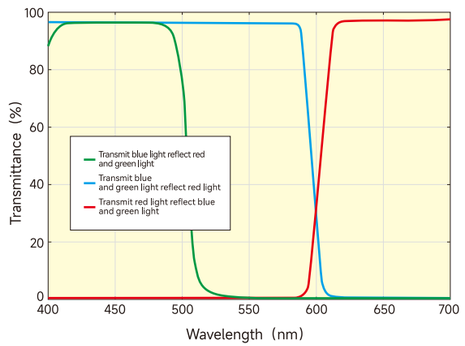
Solution Laser projectors

The principle of a projector: First, the light is irradiated on the image display element to produce an effect, and then projected through the lens. the image display element of the projector includes a transmission type that uses transmitted light to generate an image and a reflective type that uses reflected light to generate an image.
no matter which type, the light of the projection lamp is divided into three colors of red, green and blue, and then images of various colors are produced. because the component itself can only display monochrome, it is necessary to use three components to generate three-color components respectively. these three-color images are then synthesized into one image through a prism, and finally projected onto a screen through a lens.





Spectrum demonstrate



Covered optics

Dichroic mirror，dielectric mirror，optical prisms，optical lenses, etc.

Product parameters

Transmit blue light reflect red and green light

1 T(avg)>95%@420-470nm T=50%@485±5nm
T(avg)<1%@500-680nm Angle of fire:45°±13°

2 AR R<1%@420-660nm Angle of fire:45°±9°

Transmit blue and green light reflect red light

1 T(avg)>95%@420-575nm T=50%@600±5nm
T(avg)<1%@625-680nm Angle of fire:45°±13°

2 AR R<1%@420-660nm Angle of fire:45°±13°

Transmit red light reflect blue and green light

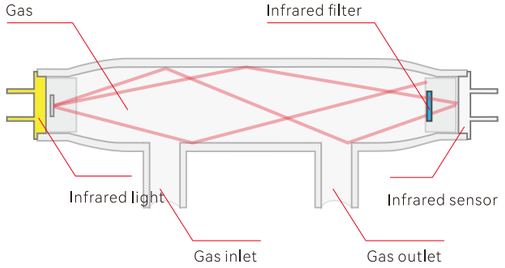
1 T(avg)>95%@420-585nm T=50%@600±5nm
T(avg)<93%@625-680nm Angle of fire:45°±13°

2 AR R<1%@420-660nm Angle of fire:45°±13°

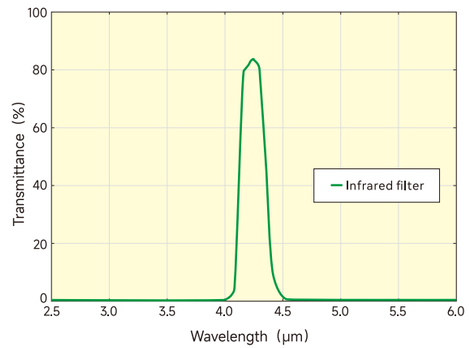
Application: gas detector, thermopile sensing, infrared thermal imaging, security monitoring, fire safety, forest fire prevention, exhaust detection, circuit safety detection, industrial automation, etc.

Solution Gas detector

The principle of the gas detector: measuring the absorption spectrum and distinguish the type of gas; measuring the absorption intensity can determine the concentration of the gas to be measured. Infrared gas detectors have a wide range of applications and can analyze not only gas components but also solution components. moreover, it has high sensitivity, quick response, can read instructions online, and can also form an adjustment system. the detection part of the infrared gas detector commonly used in industry is composed of two parallel optical systems with the same structure.
on the tube cap of the detector, a narrow-band filter is packaged, and its transmission band is exactly the absorption band of the target gas. to detect gas with a detector based on thermal principles, it is necessary to consider that the transmittance of the gas mixture is within a certain spectral range. If the measured gas concentration is zero, the infrared radiation energy will directly reach the detector, at this time, the signal of the detector reaches the maximum value. If the gas concentration increases, according to Beer-Lambert's law, the absorbed infrared radiation also increases, and the detector signal will decrease accordingly.



Spectrum demonstrate



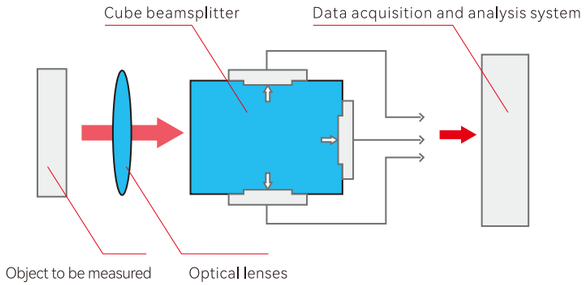
Product parameters	
Material	Silicon
Centre wavelength(CWL)	4260nm
Peak transmittance(Tp)	T>85%
FWHM	90~380nm
OD	T>1%
Surface quality	60-40, 40-20

Covered optics

3046nm, 3150nm, 3300nm, 3390nm, 3550nm, 4260nm, 4426nm, 4650nm, 4700nm, 5079nm, 7350nm, 10.6μm, 8-14μm, Calcium Fluoride Windows, Mirrors, etc.

Solution Thermal imaging equipment

Thermal imaging equipment is mainly used for industrial temperature measurement and human body temperature detection, security mobile phones and medical PDA. monocrystalline silicon, float zone silicon and germanium are mainly used. the coating process mainly uses double-sided coating, 5-14 micron and 8-14 micron. adding DLC coating improves the scratch resistance and surface hardness of the lens, increases the service life and damage resistance threshold of the lens in harsh environments, the average transmittance of silicon reaches 82%, and the average transmittance of germanium to 92%.



Spectrum demonstrate

Product material	
Material	Germanium
Dimensional tolerance	+0/-0.2m
Center thickness tolerance	±0.1mm
Center thickness	0.84mm
Curvature radius	6.7
Size	6.2mm
Surface quality	60-40, 40-20

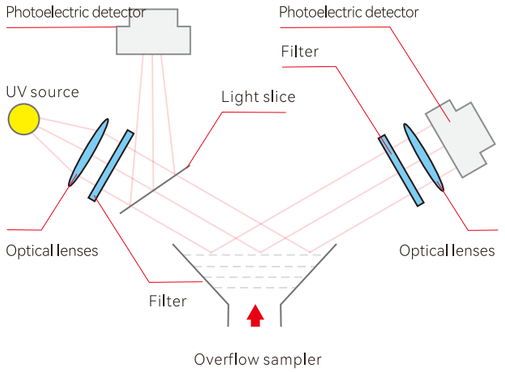
Covered optics

Silicon lenses , germanium lens, ZnSe, 8-14μm anti-reflection + DLC,aspheric lens, etc.

Application: water quality analyzer, gas analyzer, sterilization and antivirus, solar lamp analyzer, etc.

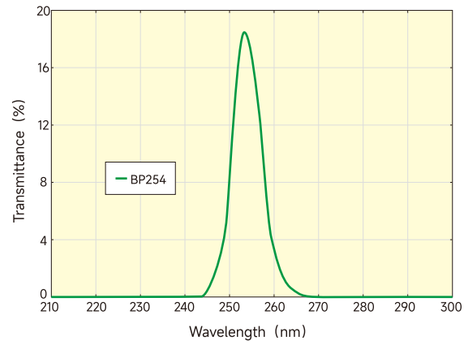
Solution Oil in water analyzer

The oil in water analyzer is a high-precision miniature immersion instrument. when the instrument is working, it emits ultraviolet light of a specific wavelength. after the petroleum substances in the water sample absorb the energy of ultraviolet light, they transition from a low-energy state to a high-energy state, and then transition from a high-energy state to a low-energy state. fluorescence is emitted. this phenomenon is called stimulated emission. the wavelength of the stimulated emission of fluorescence depends on the wavelength of the incident ultraviolet light, the molecular structure of the stimulated emission. according to the intensity of fluorescence in a certain band, the concentration of petroleum substances in water is calculated. the detection limit of this meter can be as low as 0.1ppb, and the response time can be as fast as 1 second.



Product parameters	
Material	Quartz glass
Centre Wavelength(CWL)	254±2nm
Peak transmittance(Tp)	T>16%
FWHM	9nm±3nm
Blocking wavelength	200-230nm
Optical density(OD)	OD5

Spectrum demonstrate



Covered optics

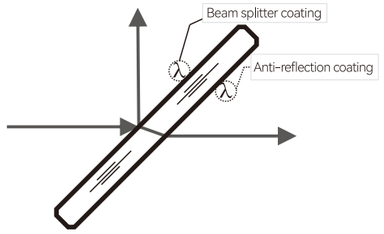
Bandpass filter 254nm, bandpass filter 360nm, optical lenses, mirror, etc.

Beam Splitter

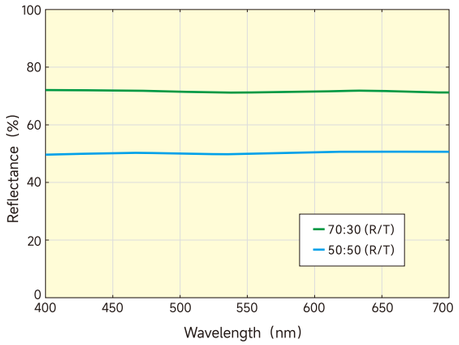
GIAI PHOTONICS
Leading supplier of optical components

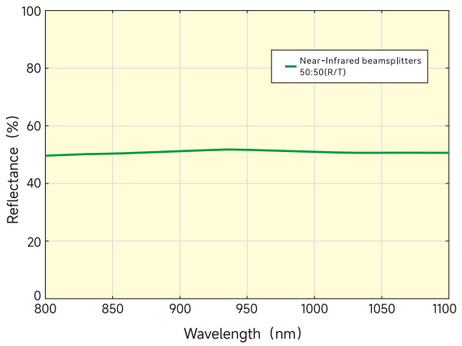
Product introduction

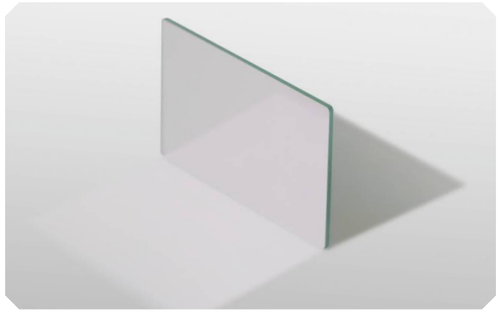
The Beam splitter plays the role of separating the energy of the light source and changing the direction of the light path in the light path. the structure design is relatively simple, the light absorption is small, and the loss after light splitting is small. the characteristics of the GiAi beam splitter are the flat all-dielectric coat splitting ratio and the wedge surface of 30 arc minutes on the back and the super anti-reflection and anti-reflection effect to ensure no ghosting and stray light. It is applicated in microscopic imaging, machine vision, laser beam splitting, and 3D synthesis.



Spectrum demonstrate







Product parameters

Beam splitter	
Coating	IAD multilayer dielectric coating
S1,Anti-reflection coating	Working wavelength, R<0.5%
S2,Beam splitter coating	Tolerance ±2%
Material	K9,BK7,B270,D263T,Quartz glass
Round	Φ3mm-Φ110mm
Square	2mm*2mm-146mm*146mm
Thickness	0.3-5.0mm
Clear aperture	>95%
Surface quality	40-20(S/D)
Environmental testing	MIL-STD-810F

General application

Application	Size	Spectral wavelength	Spectral ratio
Optical communication LD pumps	2*2*0.3mm	850nm	T:R=60:40
Lasers	3*4*0.31mm	532nm	T:R=90:10
3D measurement	10*20*0.3mm	500-650nm	T:R=50:50
Laser lamp	10*2*1.1mm	465nm	T:R=50:50
Fiber optic face inspection	15*18*0.3mm	420-680nm	T:R=50:50
Digital microscope	25*35*1.1mm	420-680nm	T:R=60:40
Machine vision	84.5*62*1.1mm	420-680nm	T:R=50:50
Coaxial light	102*142*1.1mm	420-680nm	T:R=70:30

Dichroic Mirror

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Leading supplier of optical components

Product introduction

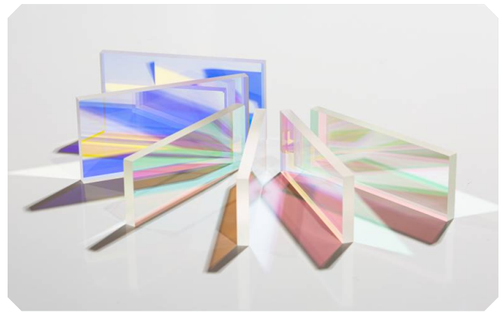
It refers to separating the light source into a specific spectrum and changing the light path direction of part of the spectrum when it is incident at 45 degrees or at a large angle. It is often used in sensor systems such as fluorescence microscope systems of enzyme label instruments, projection light engine systems, laser lights, optical instrument beam splitters, and video eyes. It is an optical component that optical designers are enthusiastically pursuing. the structure of the device can be effectively reduced to realize a multifunctional optical path.

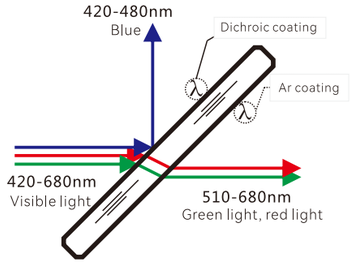
Features

High transmittance, accurate wavelength positioning, small light energy loss, etc.

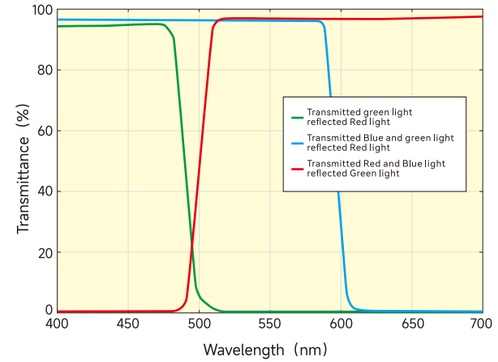
Product parameters

Dichroic mirror	
Coating	IAD multilayer dielectric coating
S1	AR Coating 420-680nm@R<1%
S2	Dichroic coating
Transmittance average of working band	T>95%
Reflection average of working band	R>95%
Size	2*2~146*146mm , Φ3~110mm
Thickness	0.3-5.0mm
Clear aperture	>95%
Surface quality	40-20(S/D)
Environmental testing	MIL-STD-810F





Spectrum demonstrate



General application

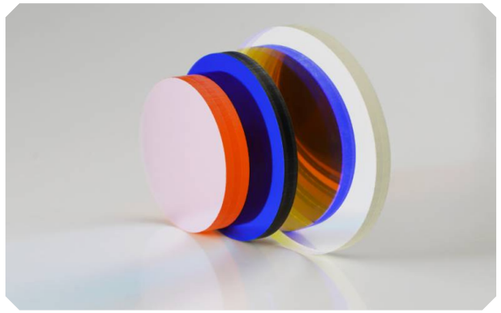
Model	Application	CWL	Transmission wavelength	Reflection wavelength	Ar coating wavelength
GA-DMSP-594	Micro projection	594	430-588nm	600-650nm	420-680nm
GA-DMSP-486	Micro projection	486	430-470nm	494-650nm	420-680nm
GA-DMLP-675	Fluorescence microscope	675	690-800nm	610-650nm	420-800nm
GA-DMLP-495	Fluorescence microscope	495	510-680nm	450-480nm	420-680nm
GA-DMSP-560	Fluorescence microscope	560	530-550nm	570-590nm	420-680nm
GA-DMSP-583	Stage lighting	583	420-560nm	600-650nm	420-680nm
GA-DMLP-486	Stage lighting	486	490-650nm	430-470nm	420-680nm

Narrow Bandpass Filter

GiAi GIAI PHOTONICS
Leading supplier of optical components

Product introduction

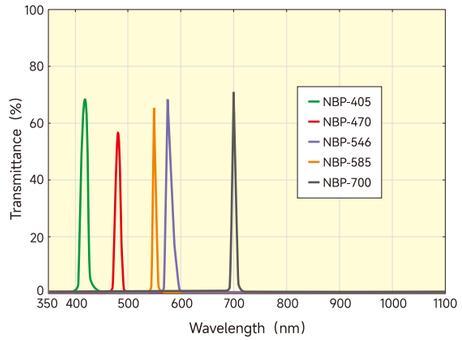
Optical lenses that suppress light sources, sensors, and natural light and separate out a specific monochromatic spectrum. narrowband filters are filters that relatively cut off interference light and pass through specific wavelengths. the advantage of the narrow-band filter produced by GiAi is that it pays more attention to the customer's application field and customizes the narrow-band filter with the best cost performance. It is applicated in semiconductor data, surveillance cameras, sensor packaging, medical instruments, fluorescence microscopes.

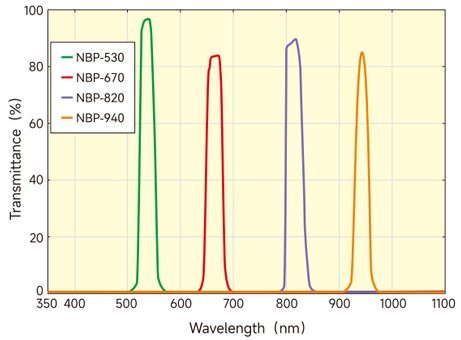


General application

Application	CWL	Tp	FWHM	Blocking wavelength	Optical density（OD）
Semiconductor package	635nm	635±5nm@T≥90%	35±5nm	350-1100nm@T<0.01%	GA-NBP-635-35
Laser range finder	905nm	905±5nm@T>90%	20nm	350-1100nm@T<0.01%	GA-NBP-905-20
Barcode scanning	650nm	650±8nm@T>90%	50nm	350-1100nm@T<0.01%	GA-NBP-650-50
Fingerprint recognition	530nm	530±3nm@T>90%	25nm	350-1100nm@T<0.01%	GA-NBP-530-25
Biometric identification	850nm	850±3nm@T>80%	20nm	350-1100nm@T<0.01%	GA-NBP-850-20
Criminal investigation light source	450nm	450±3nm@T>80%	20nm	350-1100nm@T<0.01%	GA-NBP-550-20
Wheel aligner	940nm	940±5nm@T>85%	35nm	350-1100nm@T<0.01%	GA-NBP-940-35

Spectrum demonstrate





Product parameters

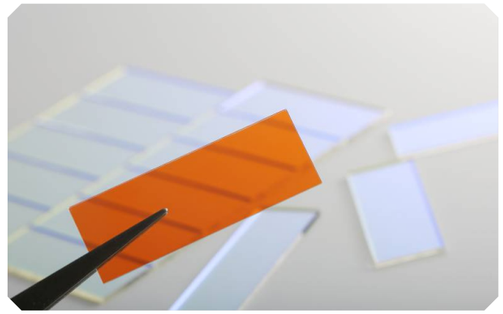
Narrowband pass filter	
Coating	IAD dielectric hard coating, combined filter
Peak transmittance(Tp)	95%, 90%, 85%, 80%, 70%, 60%, 50%, 40%, 30%, 20%, 10%
FWHM	8nm,10nm, 15nm, 20nm, 25nm, 30nm, 35nm, 40nm
Surface quality	40-20(S/D)
Clear aperture	>95%
OD	OD2, OD3, OD4, OD5, OD6
Thickness	0.3mm,0.55mm,0.7mm,1.0mm, 1.1mm,2.0mm,3.0mm,4.0mm
Cut-off wavelength range	200nm~λCentreWavelength~1100nm
Environmental testing	MIL-STD-810F
Material	Optical-grade glass (K9, BK7, B270, D263T, colored glass, etc.)
Round	Φ3mm-Φ110mm
Square	2mm*2mm-146mm*146mm

Longpass Filter

GiAi GIAI PHOTONICS
Leading supplier of optical components

Product introduction

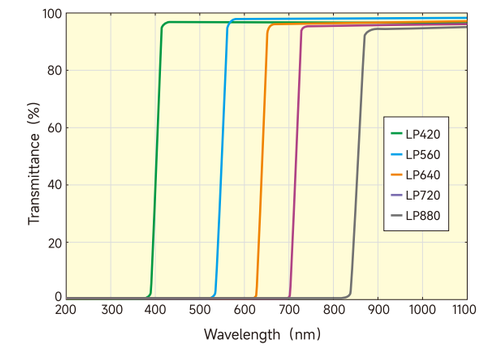
GiAi's longpass filter focuses on customizing filters with high cut-off short-wave region and high-penetration long-wave region according to customer needs. the wavelength range from ultraviolet to near infrared can be selected arbitrarily, and the slope of the transition zone between projection and reflection is less than 20nm. made of high-quality quartz glass, vacuum-deposited hard coat, the coat can withstand the flame burning test. often used in laser photon beauty instrument, optical instrument, infrared imaging and other fields.



Product parameters

Longpass filter	
Coating	IAD multilayer dielectric coating
Peak transmittance(Tp)	T>94%
Optical density(OD)	OD2-OD4
Blocking wavelength	<20nm
Working wavelength	200-1100nm
Material	B270, D263T, quartz glass, sapphire
Round	Ø3mm~Ø110mm
Square	2*2mm~146*146mm
Thickness	0.3-5.0mm
Clear aperture	>95%
Surface quality	40-20(S/D)

Spectrum demonstrate



General application

Model	Application	CWL	Blocking wavelength	OD	Transmittance
GA-LP-420	Fluorescence detection	420nm	>20nm	OD3-OD4	430-1100nm@T>94%
GA-LP-430	Optical beauty instrument	430nm	>20nm	OD3-OD4	440-1100nm@T>94%
GA-LP-480	Optical beauty instrument	480nm	>20nm	OD3-OD4	490-1100nm@T>94%
GA-LP-560	Optical beauty instrument	560nm	>20nm	OD3-OD4	570-1100nm@T>94%
GA-LP-590	Optical beauty instrument	590nm	>20nm	OD3-OD4	600-1100nm@T>94%
GA-LP-640	Optical beauty instrument	640nm	>20nm	OD3-OD4	650-1100nm@T>94%
GA-LP-690	Optical beauty instrument	690nm	>20nm	OD3-OD4	700-1100nm@T>94%
GA-LP-720	Infrared imaging	720nm	>20nm	OD3-OD4	730-1100nm@T>94%
GA-LP-800	Night vision goggles	800nm	>20nm	OD3-OD4	810-1100nm@T>94%
GA-LP-830	Night vision goggles	830nm	>20nm	OD3-OD4	840-1100nm@T>94%
GA-LP-880	Anti-red burst camera	880nm	>20nm	OD3-OD4	890-1100nm@T>94%

Shortpass Filter

GiAi GIAI PHOTONICS
Leading supplier of optical components

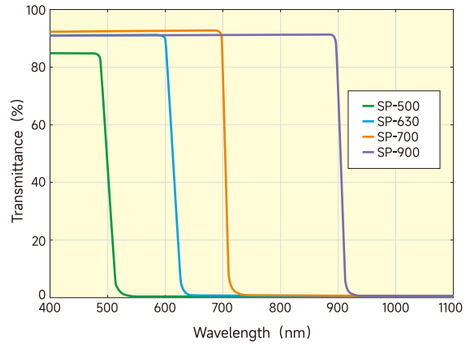
Product introduction

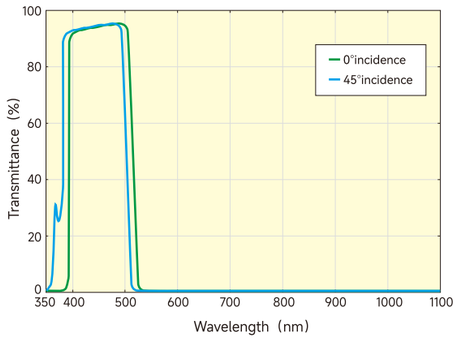
In order to meet the needs of sensor chips such as CCD or CMOS, and allow visible light to penetrate to the maximum extent, the anti-infrared region needs to be cut off or reflected, or to project or cut off any wavelength band. It is necessary to ensure very good flatness and high transmission in the short-wave region, so the difficulty factor of the short-wave pass filter is greater than that of the LP filter. In particular, when the short-wave pass filter is used in the field of ultraviolet light sources, it is difficult to allow the ultraviolet light to pass through as much as possible, and the visible light and near-infrared light to reflect or cut off.
It is often used in ultraviolet light sources, mobile phone cameras, laser protection, heat reflection lighting systems, and fluorescent ink laser imaging.

Product parameters

Shortpass filters	
Coating	IAD multilayer dielectric coating, BBAR coating, DLC coating
Working wavelength	200-1100nm
Material	Optical grade glass (K9, BK7, B270, D263T, quartz, etc.)
Size(Round)	Ø3mm~Ø110mm
Size(Square)	2*2mm~146*146mm
Thickness	0.3-5.0mm
Clear aperture	>95%
Surface quality	40-20(S/D)
Environmental testing	MIL-STD-810F
Tp	T>85%
OD	OD2-OD4
Blocking wavelength	<20nm

Spectrum demonstrate





Dielectric coat shortpass filters have the same characteristics as longpass filters. the onset wavelength of these filters shifts like a shortwave as the angle of incidence increases. generally speaking, when the incident angle changes from 0° to 45°, the center wavelength shifts about 10% shorter. this feature can be used in applications that require slight adjustment of the wavelength or cutoff wavelength.

General application

Application	CWL	Blocking wavelength	T
Ultraviolet light source	420nm	>20nm	330-390nm@T>80%
Criminal investigation multi-band light source	500nm	>20nm	400-490nm@T>85%
Laser protective eyewear	630nm	>20nm	400-620nm@T>90%
High definition camera	650nm	>20nm	400-640nm@T>94%
Angled lenses	700nm	>20nm	690-1100nm@T>95%

Mirror

GiAi GIAI PHOTONICS
Leading supplier of optical components

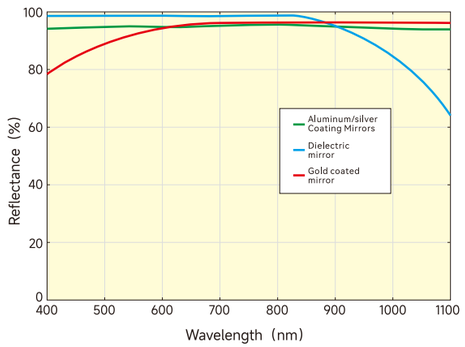
Product introduction

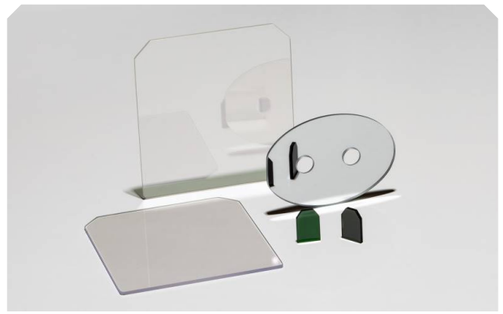
The reflection of light incident on the metal coat layer or dielectric coat layer on the glass surface is called the front surface mirror. GiAi supplies enhanced aluminum plus dielectric mirrors and all-dielectric large-angle mirrors. the reflected image is not distorted and has no heavy color. It is made of high-quality JGS2 quartz glass and high borosilicate glass to work normally in high temperature environments. commonly used coating methods include silver coating, aluminum coating, gold coating and full dielectric coat. the surface of the coat layer is protected by an electrostatic coat, which is convenient and quick to install.
Widely used in projectors, laser printers, copiers, biometric imaging optical instruments, laser lights, lasers and other fields.

Product parameters

Mirror parameters	
Coating	Gold coating, aluminum coating plus dielectric coating, dielectric coating
Average reflectance	420-680nm@R>94%
Enhanced single-band reflectivity	450nm、532nm、650nm、780nm R>97%
Substrate	JGS2, high borosilicate glass
Surface parallelism	λ/10
Clear aperture	>95%
Surface quality	40/20(S/D)
Environmental testing	MIL-STD-810F

Spectrum demonstrate





Protected Aluminum coating

UV-Enhanced Aluminum Mirrors：UV-Enhanced aluminum mirrors is coated with a protective layer of magnesium oxide on the surface of the aluminum coat to protect the coat from oxidation and scratches. effectively improve the reflectivity of the ultraviolet band, and the reflectivity of the ultraviolet 250nm-450nm can be greater than 90%.

Enhanced Aluminum Mirrors：Enhanced aluminum mirrors the outer protective coat is coated with silicon dioxide to prevent the soft aluminum coat from being scratched and oxidized. 450-2000nm average reflectance greater than 90%. the average reflectance in the range of 2μm-20μm is greater than 95%.

Protected Gold Mirrors

Gold-coated outer Mirrors：Because the surface texture of the gold-coated is very soft, it is necessary to coat the outer layer with a protective coat to prevent scratches and moisture. The gold-coated outer mirror is coated with silicon dioxide on the surface of the gold coat, which can protect the coat performance. The reflectivity in the 0.75μm-20μm band is greater than 96%.

Gold-coated inner Mirrors：The inner mirror is protected by chrome-coated gold coat surface. Reflection is reflected through the glass surface and then incident on the gold coat, so it is called internal reflection, and it is suitable for use in environments that do not require high spots. the reflectivity in the 0.75μm-20μm band is greater than 96%.

Dielectric mirror

Dielectric mirror can have a very high reflectivity in a specific band, up to more than 99%. the dielectric mirror produced by GiAi are conventionally available in single-point high reflection, 470nm, 532nm, 650nm, 808nm, 1064nm. broadband high reflection has 400-700nm, 650-1200nm.

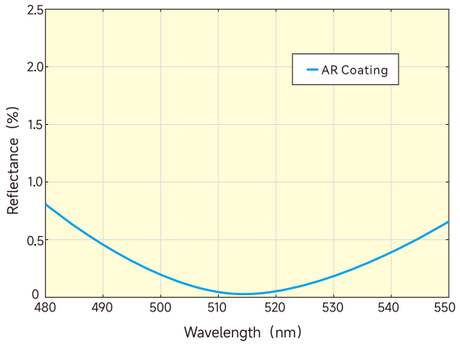
Anti-reflection Window

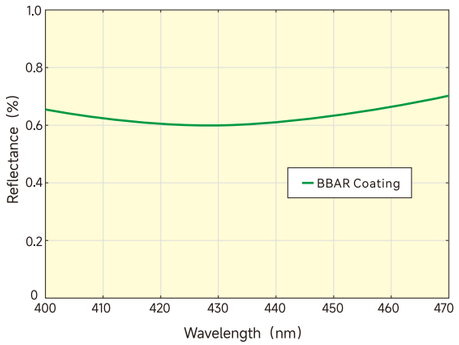
GiAi GIAI PHOTONICS
Leading supplier of optical components

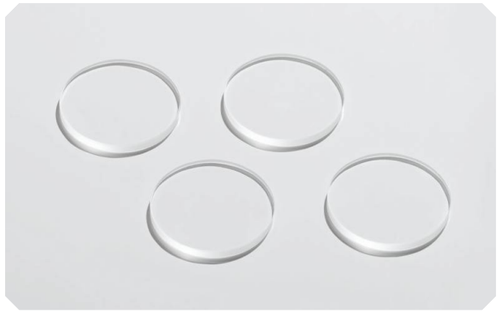
Product introduction

In order to protect the lens from environmental influences such as wind and rain, double-sided anti-reflection glass is the best choice. the BBAR anti-reflection glass produced by GiAi has the advantage of large size. according to customer preferences, anti-scratch, reflective and textured dark green, classic blue, light red and other anti-reflection glasses are designed in combination with laser wavelengths and sensor application bands. the wavelength anti-reflection can also be wide-band anti-reflection.
380nm-1100nm near-perfect full-spectrum antireflection is to provide low-loss high-definition visual effects for optical instrument protection panels and security day and night surveillance cameras. anti-drop, anti-shock, anti-fingerprint, anti-fog, anti-glare. after the ball test, the water drop angle is 110 degrees, super smooth, super hard, and super light transmission are the most basic functions of GiAi BBAR anti-reflection glass.

Spectrum demonstrate







Application field

Passport collector panel, SLR camera UV mirror, AG glass, mobile phone cover, security surveillance camera, infrared light source glass, touch screen glass, home appliance panel glass, museum display cabinet glass.

Product parameters

AR glass	
Coating	Multi-layer dielectric hard coat, multi-layer AR coating, DLC coating
Transmittance	T>94.5 %
Transmittance for double-sides	T>98.5%
Single point working wavelength	475nm、532nm、650nm、808nm、850nm、1064nm
Broadband working wavelength	420-680nm 、420-1064nm
Material	Optical glass (K9, BK7, B270, D263T, quartz glass, etc.)
Round	Φ3mm~Φ110mm
Square	2*2mm~146*146mm
Thickness	0.3-5.0mm
Clear aperture	>95%
Surface quality	40-20(S/D)
Environmental testing	MIL-STD-810F

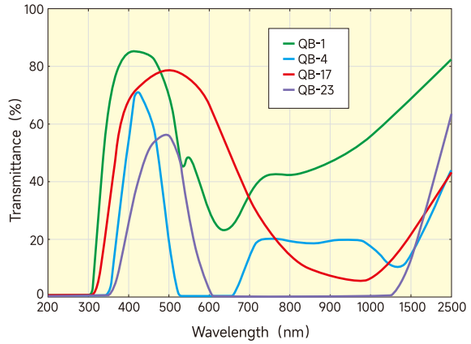
Color Glass filter

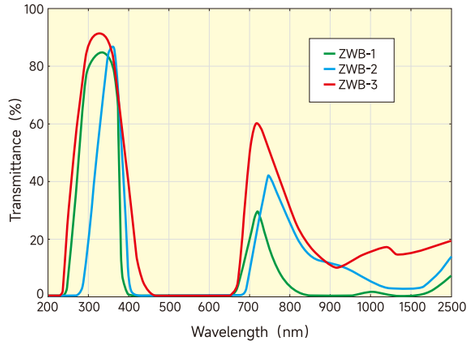
GiAi GIAI PHOTONICS
Leading supplier of optical components

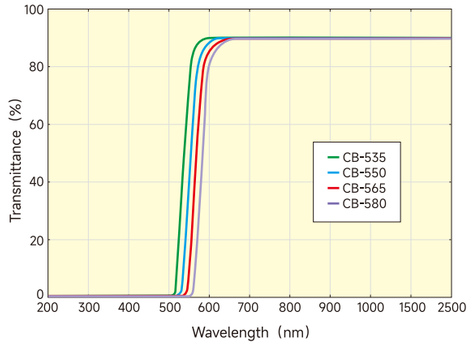
Product introduction

This absorbing optical filter absorbs a specific wavelength spectrum by doping a certain proportion of colored adsorbent, and after coating, it can work in a long-term harsh environment. GiAi has dozens of large-scale polishing, grinding and engraving equipment to ensure mass production of blue glass for high-resolution cameras, black glass for security switches, and various optical instruments, photoelectric sensors and light sources that meet optical industry standards Various colour glass used.

Spectrum demonstrate







Mass production	
Yellowish	ZJB380、JB400、JB420、JB450、JB470、JB490
Golden	CB535、CB550、CB565、CB580
Orange red	Hb600、HB610、HB630、HB650、HB670、HB720
Infrared transparent black	HWB760、HWB800、HWB830、HWB850、HWB3
Through UV glass	ZWB1、ZWB2、ZWB3、ZB1、ZB2
Blue glass	QB1~QB5、QB21、QB23~QB29
Other brands	LB19、GRB1、GRB3、SSB40、ZAB50、ZAB70

Features

100% full inspection, no streaks, no miscellaneous lines, high-smooth polished surface, high-precision thickness control, good wavelength and transmittance stability.

GiAi GIAI PHOTONICS
Leading supplier of optical components

Product introduction

Optical Lenses is an optical element used to focus or disperse light. It is widely used in optical component in imaging systems. optical Lenses is a refracting mirror, and its refracting surfaces are two spherical surfaces, or a transparent body with one spherical surface and one plane.
the imaging of optical lens has real image and virtual image. lenses can generally be divided into two categories: convex lenses and concave lenses. convex lens: thick in the middle and thin at the edge, there are three types: biconvex, plano convex, and concave-convex. concave lens: Thin in the middle and thick at the edge, there are three types: plano concave, double-concave, and concave-convex.

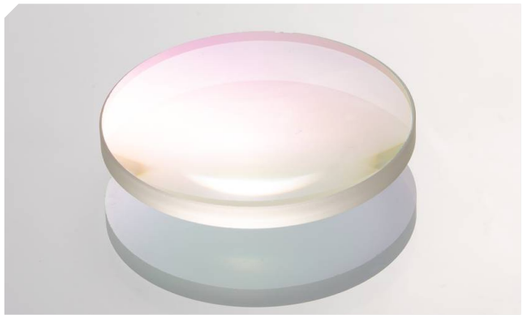
Application field

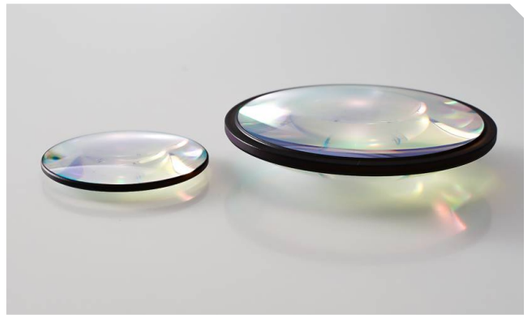
VR, camera, magnifying glass, projector, optical imaging, astronomical observation, scientific research, military industry, mobile phone external lens, photographic lens, telecentric lens, infrared lens, collimating lens, military lens and other high-end lenses.

Our advantage

GiAi has a very rich product line of conventional optical lenses, plano convex lenses, biconvex lenses, plano concave lenses, biconcave lenses, cemented lenses, meniscus lenses, and achromatic lenses. after long-term and continuous hard work, we have reached the domestic leading level in the field of optical lenses, and have been able to mass produce H-ZLAF, H-LAF, H-LAK, D-ZK, H-FK and other corrosive materials. due to improper storage of these materials or improper selection of process and auxiliary materials, scratches and pits will appear on the entire batch of products. the materials are expensive and the processing is extremely difficult.

Product display

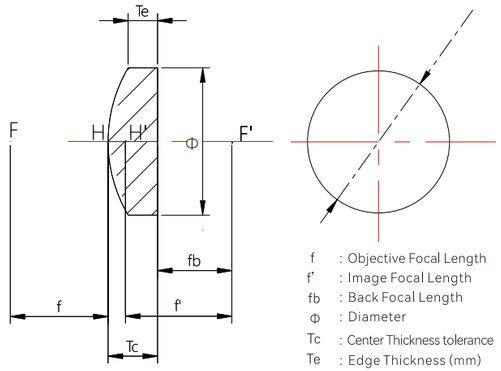




GiAi GIAI PHOTONICS
Leading supplier of optical components

Product introduction

Plano-convex lenses are ideal for converging parallel light rays to a single point, and these lenses can be used for a variety of applications. they have positive focal lengths and near-optimal profiles for infinitely far and finitely far conjugate applications. Plano-convex lenses can converge a collimated beam at the rear focal point or turn a point source into a collimated beam.
GiAi lenses are usually made of K9 glass, which is coated to increase transmission in the 400-700mm wavelength range. they are also manufactured using UV quartz, which has excellent transmittance in the UV region and a low coefficient of thermal expansion, and can be coated with a UV AR coat for use in special circumstances.



f : Objective Focal Length
f' : Image Focal Length
fb : Back Focal Length
Φ : Diameter
Tc : Center Thickness tolerance
Te : Edge Thickness (mm)

Product parameters

Plano-convex lenses	
Material	K9, optical glass, UV quartz, fluorine
Focal length (f')	±2%@587.6nm
Dimensional tolerances	-0.02~0.1 mm
Center thickness tolerance	±0.02~0.1mm
Centering (arcmin)	30″~3′
Power	1~5
Irregularity	0.2~0.5
Surface quality	60-40, 40-20
Clear aperture	>90%
Coating	AR coating

Conventional model

Diameter	Focal length	Back focal length	Center thickness	Edge thickness	Radius of curvature
6.0mm	10.0mm	8.4mm	2.5mm	1.5mm	5.2mm
6.0mm	15.0mm	13.6mm	2.1mm	1.5mm	7.7mm
9.0mm	20.0mm	18.3mm	2.5mm	1.5mm	10.3mm
12.7mm	15.0mm	11.6mm	5.1mm	1.8mm	7.7mm
12.7mm	30.0mm	27.9mm	3.2mm	1.8mm	15.5mm
12.7mm	50.0mm	48.3mm	2.6mm	1.8mm	25.8mm
12.7mm	100.0mm	98.6mm	2.2mm	1.8mm	51.5mm
18.0mm	25.0mm	21.39mm	5.5mm	1.8mm	12.9mm
25.0mm	25.4mm	17.7mm	11.7mm	2.5mm	13.1mm
25.0mm	75.0mm	72.3mm	4.1mm	2.02mm	38.6mm

Biconvex Lenses

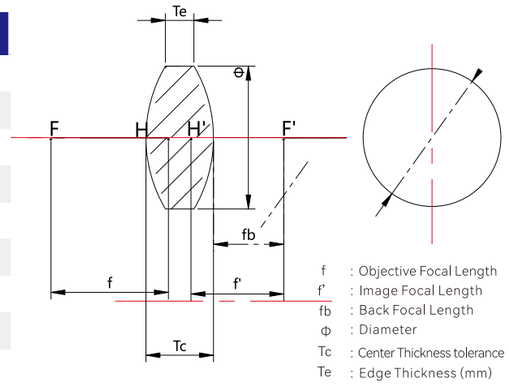
GIAI PHOTONICS
Leading supplier of optical components

Product introduction

Biconvex lenses are primarily used to converge light from a point source or to transmit images to other optical systems. biconvex lenses are suitable for use in many applications where there are limitations on imaging. biconvex lenses have symmetry because the front and back surfaces are convex spherical surfaces with equal radii of curvature, which minimizes spherical aberration and eliminates aberrations, distortions, and chromatic aberrations.

Product parameters

Biconvex lenses	
Material	K9, optical glass, UV quartz, fluorine
Focal length (f')	±2%@587.6nm
Dimensional tolerances	-0.02~0.1 mm
Center thickness tolerance	±0.02~0.1mm
Centering (arcmin)	30″~3′
Power	1~5
Irregularity	0.2~0.5
Surface quality	60-40 40-20
Clear aperture	>90%
Coating	AR coating



f : Objective Focal Length
f' : Image Focal Length
fb : Back Focal Length
Φ : Diameter
Tc : Center Thickness tolerance
Te : Edge Thickness (mm)

Conventional model

Diameter	Focallength	Back focal length	Center thickness	Edge thickness	Radiusof curvature
6.0mm	10.0mm	9.2mm	2.4mm	1.5mm	9.9mm
6.0mm	12.0mm	11.2mm	2.3mm	1.5mm	12.0mm
9.0mm	20.0mm	19.0mm	2.8mm	1.8mm	20.1mm
12.7mm	15.0mm	13.4mm	4.7mm	1.8mm	14.6mm
12.7mm	25.0mm	23.8mm	3.4mm	1.8mm	25.2mm
12.7mm	30.0mm	28.9mm	3.1mm	1.8mm	30.4mm
12.7mm	50.0mm	49.1mm	2.6mm	1.8mm	51.1mm
25.4mm	25.4mm	22.2mm	9.0mm	1.8mm	24.5mm
25.4mm	40.0mm	37.9mm	6.1mm	2.0mm	40.1mm
50.8mm	150.0mm	147.6mm	7.2mm	3.0mm	153.3mm

Plano Concave Lenses

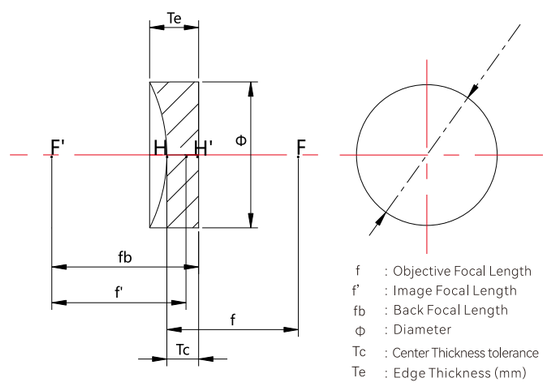
GIAI PHOTONICS
Leading supplier of optical components

Product introduction

Plano concave lenses diverge parallel light outward. Plano concave lenses have negative focal lengths and negative spherical aberrations, and can be used to correct phase, spherical, coma, and eyepiece variations in other lenses. Similar to plano-convex lenses， the curved side is generally directed toward the far object plane or infinity.

Product parameters

Plano concave lenses	
Material	K9, optical glass, UV quartz, fluorine
Focal length (f')	±2%@587.6nm
Dimensional tolerances	-0.05~0.1 mm
Center thickness tolerance	±0.03~0.1mm
Centering (arcmin)	30″~3′
Power	1~5
Irregularity	0.2~0.5
Surface quality	60-40 40-20
Clear aperture	>90%
Coating	AR coating



f : Objective Focal Length
f' : Image Focal Length
fb : Back Focal Length
Φ : Diameter
Tc : Center Thickness tolerance
Te : Edge Thickness (mm)

Conventional model

Diameter	Focallength	Back focal length	Center thickness	Edge thickness	Radiusof curvature
9.0mm	-27.0mm	-28.3mm	2.0mm	2.7mm	-13.9mm
12.7mm	-25.0mm	-27.0mm	3.0mm	4.7mm	-12.9mm
12.7mm	-30.0mm	-32.0mm	3.0mm	4.4mm	-15.4mm
12.7mm	-50.0mm	-52.3mm	3.5mm	4.3mm	-25.7mm
25.0mm	-75.0mm	-77.3mm	3.5mm	5.6mm	-38.6mm
25.4mm	-50.0mm	-52.3mm	3.5mm	6.9mm	-25.7mm
25.4mm	-75.0mm	-77.3mm	3.5mm	5.6mm	-38.6mm
25.4mm	-100.0mm	-102.6mm	4.0mm	5.6mm	-51.5mm
50.8mm	-100.0mm	-102.6mm	4.0mm	10.7mm	-51.5mm
25.0mm	-150.0mm	-125.6mm	4.0mm	8.3mm	-77.2mm

Biconcave Lenses

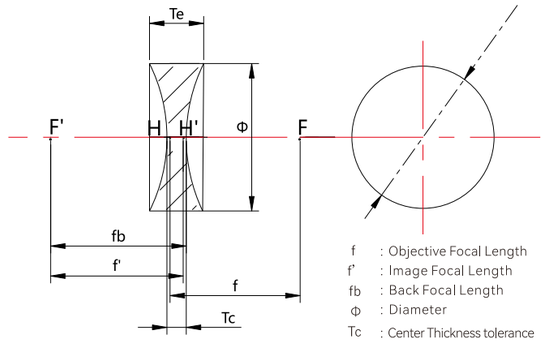
GIAI PHOTONICS
Leading supplier of optical components

Product introduction

Biconcave lenses are similar to plano-concave lenses in that they have a negative focal length, but light rays traveling in planarly are diverted outward. The radii of curvature of the two surfaces of the biconcave lens are equal, and they are generally used for beam expansion and to increase the focal length of a system, such as projection.They are generally used for expanding light and increasing the focal length in systems such as projection.

Product parameters

Biconcave lenses	
Material	K9, optical glass, UV quartz, fluorine
Focal length (f')	±2%@587.6nm
Dimensional tolerances	-0.05~0.1 mm
Center thickness tolerance	±0.03~0.1mm
Centering (arcmin)	30″~3′
Power	1~5
Irregularity	0.2~0.5
Surface quality	60-40 40-20
Clear aperture	>90%
Coating	AR coating



f : Objective Focal Length
f' : Image Focal Length
fb : Back Focal Length
Φ : Diameter
Tc : Center Thickness tolerance
Te : Edge Thickness (mm)

Conventional model

Diameter	Focallength	Back focalLength	Center thickness	Edge thickness	Radiusof curvature
6.0mm	-6.0mm	-6.1mm	1.5mm	2.5mm	-9.7mm
9.0mm	-9.0mm	-9.5mm	2.0mm	3.4mm	-14.7mm
12.7mm	-15.0mm	-15.8mm	3.0mm	4.7mm	-24.0mm
12.7mm	-50.0mm	-51.1mm	3.5mm	4.3mm	-52.1mm
25.4mm	-25.0mm	-25.8mm	3.0mm	7.2mm	-3.6mm
25.4mm	-50.0mm	-51.0mm	3.0mm	6.1mm	-52.0mm
25.4mm	-75.0mm	-76.1mm	3.5mm	5.6mm	-77.9mm
50.0mm	-100.0mm	-101.6mm	5.0mm	11.3mm	-104.55mm
50.0mm	-125.0mm	-126.6mm	5.0mm	9.95mm	-130.48mm
75.0mm	-150.0mm	-151.8mm	5.0mm	14.42mm	-156.57mm

Meniscus Lenses

GIAI PHOTONICS
Leading supplier of optical components

Meniscus lenses

Meniscus lenses, also known as a concave-convex lenses, reduces spherical aberration to create the smallest possiblecollimated in the focal point of the incoming light.

Stable batch production of soft materials (fcd1, pcd4) with an abrasion level of 400 or more and hard materials with an abrasion level of 60-80 (tac8, lac14, nbfd11) for optical lenses of various shapes and special materials, as well as two-dimensional and ultra-wideband ar coatings in addition to the usual broadband ar coatings.

Cemented lenses

Cemented lenses, also known as achromatic lenses, are made by gluing two single-cell lenses together, and their performance in polychromatic (white light) imaging is much higher than that of single-cell lenses.

An anechoic mirror consists of two mirrors of different materials glued together to correct the dispersion of the glass. By eliminating the problem of aberration, anechoic photographs are used extensively for multicolor illumination and imaging, reducing the cost.

Triple-cemented lenses

Triple cemented lenses have the advantage of providing the sharpest and most realistic images compared to single or bending month lenses. In a projection system, neither a single lens nor a double lens can produce the high-quality image that a triple lens can produce. If image clarity is to be compared with the eye, there is little that can be done to beat the performance of a trilens.

GiAi is capable of cementing single lenses of different sizes and materials into high-precision triple-cemented lenses.

GIAI PHOTONICS
Leading supplier of optical components

Product introduction

Prisms can be used to deflect light at a specific angle. prisms can be used not only to deflect light, but also to orient the image. prisms will be designed to determine how they interact with light rays. the prism will be designed to determine how it interacts with the light. when light enters a prism, it will either be reflected off one or more surfaces before exiting, or it will be refracted as it passes through the substrate.

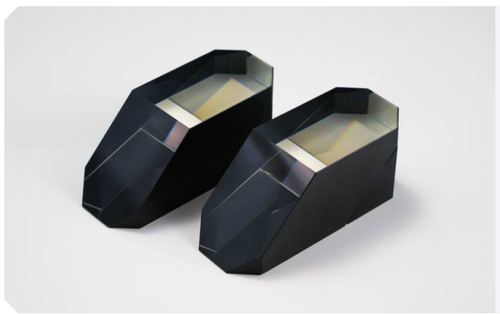
Our strengths

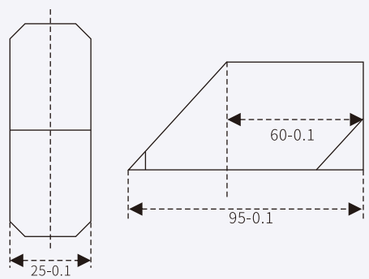
Since the establishment of GiAi AnShan branch, we have built a highly qualified optical process team and a complete prism production line.

Prism products include: rectangular prisms, equirectangular roof prisms, pentagonal prisms, planar prisms, schmidt's roof prisms, wedge prisms, shaped prisms, dewey's prisms, spectroscopic prisms, and other multi-faceted, polygonal prisms.

Substrate	Surface accuracy	Angle accuracy	Surface quality(Appearance)
Optical prisms	λ/10	±1	10-5
Crystal prisms: ZnSe/ZnS	λ/8	±3	40-20

Flat prisms





GIAI PHOTONICS
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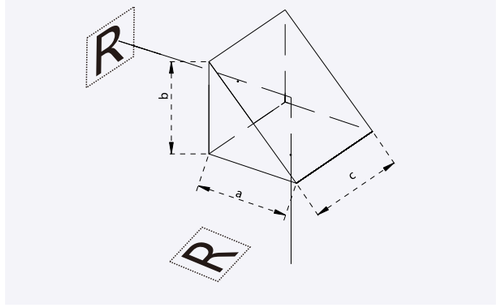
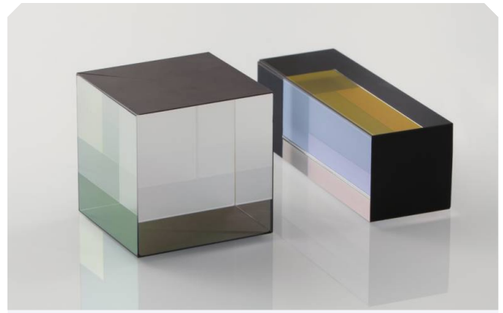
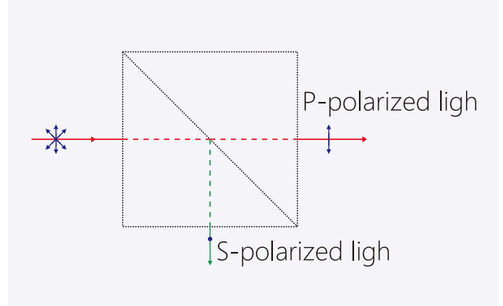
Right angle prisms



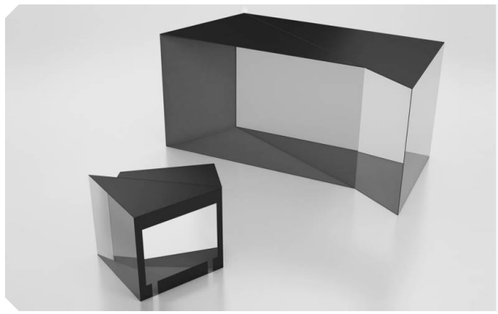
Polarizing cube beamsplitters

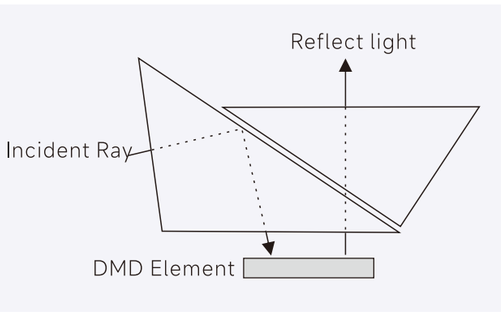




TIR prisms

TIR prisms, consisting of two triangular prisms, usually with the first prism's oblique edge creating a total inversion (total inversion of the illumination beam), are used to separate/alter the light path, illumination beam, and imaging beam in a digital projection system. DLPTM technology is used, usually in systems.





Advantages

- Consistent gap at the upper part of the usable area
- Easy system assembly
- High transmission rate in the light transmission range
- Good quality in terms of size and surface flatness
- Excellent coating reliability
- Stable and rugged construction
- Allows miniaturization

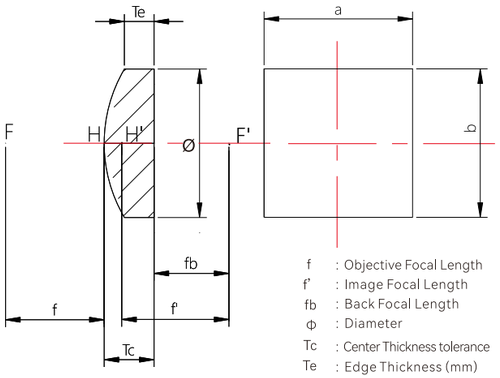
GIAI PHOTONICS
Leading supplier of optical components

Product introduction

Cylinder Lenses are ideal for one-dimensional magnification applications. a spherical lens acts symmetrically on the incoming light in both directions while a cylinder lens acts on the incoming light in only one direction. typical use is to shape an anamorphic beam with a pair of cylinder lens. a pair of positive lenses can be used to collimate and round the output of the laser diode. another possible use is to focus the diverging beam onto the detector array with a single lens. to minimize spherical aberration, the collimated source should be directed in from the curved face of the lens when focusing the beam as a line, and the line source should be directed in from the flat face of the lens when collimating the line source.

Product parameters

Cylinder lenses	
Material	K9 B270、JGS2
Focal length (f')	±2%@10.6 μnm
Dimensional tolerances	+0/-0.2m
Center thickness tolerance	±0.1mm
Centering (arcmin)	3′
Power	3
Irregularity	0.5
Surface quality	60-40
Clear aperture	>90%
Coating	400-700nm AR Coating



f : Objective Focal Length
f' : Image Focal Length
fb : Back Focal Length
Φ : Diameter
Tc : Center Thickness tolerance
Te : Edge Thickness (mm)

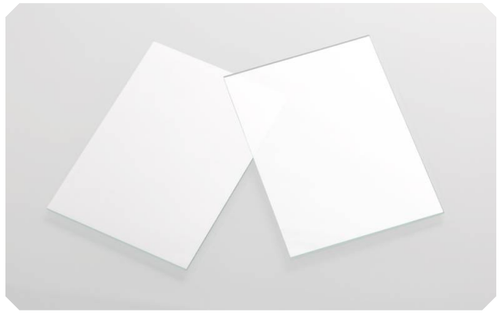
Conventional model

Size	Image focal length	Back focal length	Center thicknes	Edge thickness	Radiusof curvature
12.5*25.0mm	12.5mm	10.37mm	3.8mm	1.55mm	9.81mm
12.5*25.0mm	15.0mm	13.21mm	3.2mm	1.40mm	11.77mm
12.5*25.0mm	20.0mm	17.63mm	3.6mm	1.50mm	10.34mm
12.5*25.0mm	25.0mm	23.02mm	3.0mm	1.39mm	12.92mm
12.5*25.0mm	50.0mm	48.68mm	2.0mm	1.23mm	25.84mm
12.5*25.0mm	75.0mm	73.68mm	2.0mm	1.49mm	38.76mm
12.5*25.0mm	100.0mm	98.66mm	2.0mm	1.62mm	51.68mm
12.5*25.0mm	150.0mm	148.68mm	2.0mm	1.75mm	77.52mm

GIAI PHOTONICS
Leading supplier of optical components

Plane Optical Processing

Our flat optical products are mainly used for window aperture protection glass (mainly made of K9 glass). they are used to protect apertures for sensors and windows. when selecting a lens, it is important to consider the material's transmittance and mechanical properties. these products are widely used for watch glass, cell phone cover glass, and equipment apertures.



Calcium fluoride (caf2)

Calcium fluoride has excellent light transmission from 250 nm in the ultraviolet to 9 μm and is widely used in optical devices such as windows, prisms, and lenses in the ultraviolet to infrared spectrum. In general, the polished surface of calcium fluoride is stable and has a low absorption rate, so it is often used in high-power laser systems. GiAi can customize calcium fluoride-based products for a wide range of applications, such as windows, prisms, and lenses.

Magnesium fluoride

Magnesium fluoride fluoresces weakly in violet when heated under electric light, and its crystals are well polarized, especially in the ultraviolet and infrared spectra. It is mainly used for optical lens coatings, where a layer of magnesium fluoride on optical equipment reduces the reflection of incoming light from the lens surface, reduces halation, and improves image quality.

Sapphire

Sapphire glass has excellent thermal, electrical and dielectric properties and is characterized by chemical resistance, high temperature resistance, good thermal conductivity, high hardness and infrared transmission. therefore, it is often used as a substitute for optical materials in the manufacture of optical components and infrared-transmitting optical windows. for example, they are used in instruments for night vision infrared/night vision cameras and satellite/space technology instruments/high-power lasers/various optical prisms/optical casing/UV and IR casing and lenses, observation casing for low-temperature experiments, and have been used for high-precision instruments for navigation/aerospace/aeronautics, and so on.

Conventional model

Material	Refractive index (nv)	Dispersion (Vv)	Density(g/cm^3)	Coefficient of thermal expansion (μm/m°C)	Softening temperature (°C)
Calcium fluoride	1.434	95.1	3.18	18.85	800
Magnesium fluoride	1.413	106.2	3.18	13.7	1255
Sapphire	1.768	72.2	3.97	5.2	2000

GIAI PHOTONICS
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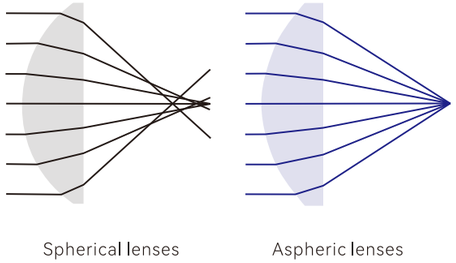
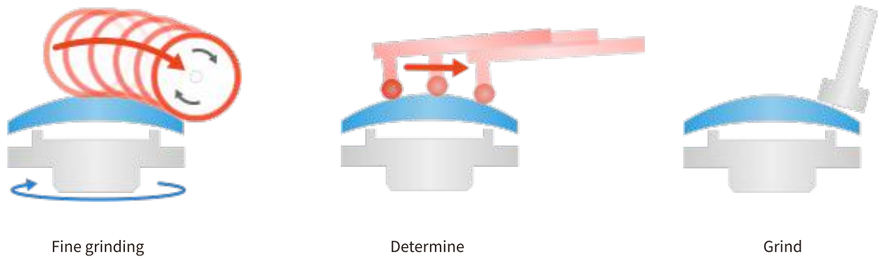
Product introduction

Aspherical glass lenses are widely used in optical, optoelectronic and opto-mechanical systems due to their excellent optical performance and image quality, elimination of spherical phase aberration, increased light transmission, and reduction in the size and weight of optical systems. In many complex optical systems, the use of aspherical lenses can reduce the number of lenses and realize the lightness of the equipment, while maintaining or even improving the image quality. However, the manufacturing process of aspheric lenses is relatively complex, and GIAI is divided into two types of processing according to product attributes: single-point diamond lathe processing and aspheric molding processing.



Single-point diamond turning process on IR optical materials

Currently, GIAI adopts the ultra-precision single-point diamond lathe DJC-100C, the surface roughness of the processed components can reach the nanometer level, and the aperture can reach up to 200mm, which is the lens made by grinding one piece of glass by one piece of glass. And this processing method can cope with a variety of lens styles, large-diameter lenses or aspheric lenses with curvature that differs greatly from the spherical surface can be manufactured. Generally, these lenses are used in professional-grade lenses that require high image quality.



Processing: Aspheric shaped lenses with an accuracy of 200 nanometers are cut with a diamond-containing grinding stone. After that, the non-curved lenses are measured one by one with precision. Based on the measurement results, a grinding program is automatically generated by comparing the design data of the lenses, and the measurement and grinding process is repeated with an accuracy of 5 nanometers.

GIAI PHOTONICS
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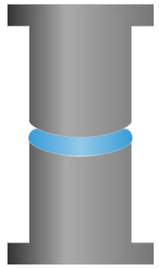
Molded Glass Aspheric Lenses

The aspheric molding process involves stamping glass in a softened state at high temperatures to form aspheric lenses. In this way, the hardness and heat-resistant properties of the glass can be maintained, and mass production is possible. We mainly process aspherical products of visible light and sulfur glass.

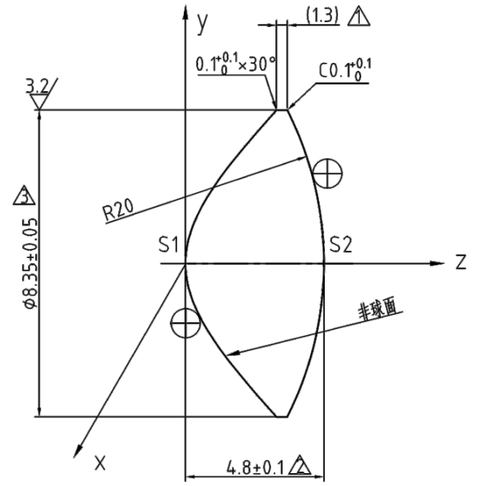


Processing procedure: First soften the glass at high temperature, and then press it with high-precision aspheric surface tool. After cooling, it will be finished after various inspections. Depending on the type of glass, the composition is different, so the temperature, time, and impact control of stamping are different. Aspheric glass is formed by stamping glass in a softened state at high temperature. In this way, the hardness and heat resistance of the glass can be maintained, and mass production is possible.

Aspheric Lenses

Aspherical coefficients	
R	2.5
K	-1.25
A	0
B	0
C	0

Sagittometer	
0	0
0.5	0.049875
1.0	0.198039
1.5	0.4403065
2.0	0.7703296
2.5	1.180340
3.0	1.661904
3.5	2.206556



非球面方程: $Z=\frac{c_0h^2}{1+\sqrt{1-(1+k)c_0^2h^2}}+Ah^4+Bh^6+Ch^8$, 式中, $h^2=x^2+y^2$

非球面顶点(0)处的曲率半径R=2.5, c_0=1/R=0.4, k=-1.25, A=0, B=0, C=0

Technical Requirements

1.S1&S2 surface coated with broadband reflective film:R<0.5%@0.425-0.675um,JB/T8226.1-1999/3.3

2. Aspheric surface profile tolerance PV<25um

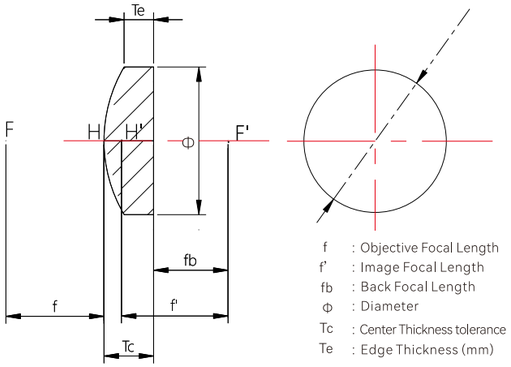
Germanium Silicon Lenses

GIAI PHOTONICS
Leading supplier of optical components

Product introduction

Germanium's wide spectral range (2-16 μm) and impermeability in the visible spectrum are well suited for infrared laser applications. It also does not react easily with air, water, alkalis and acids (except nitric acid).It is not easily reacted with air, water, alkalis, and acids (except nitric acid).

Silicon has the advantage of low cost and low density to make it a widely used NIR material for applications in the 1.2 to 7 μm region. Silicon's low density (half that of germanium or zinc selenide) makes it ideal for weight-sensitive applications, especially those in the 3-5 μm range. Its density is 2.33 g/cm3 and its Nu hardness is 1150.



f : Objective Focal Length
f' : Image Focal Length
fb : Back Focal Length
Φ : Diameter
Tc : Center Thickness tolerance
Te : Edge Thickness (mm)

Product parameters

Germanium silicon lenses	
Material	Germanium,silicon,optical grade
Focal length (f')	±2%@10.6 μm
Dimensional tolerances	+0/-0.2m
Center thickness tolerance	±0.1mm
Centering (arcmin)	3′
Power	3
Irregularity	0.5
Surface quality	60-40
Clear aperture	>90%
Coating	Infrared AR coating

Conventional model

Diameter	Image focal length	Back focal length	Center thickness	Edge thickness	Radiusof curvature
25mm	25mm	24.25mm	3.0mm	1.95mm	75.10mm
25mm	30mm	29.25mm	3.0mm	2.13mm	90.12mm
25mm	35mm	34.25mm	3.0mm	2.25mm	105.14mm
55mm	40mm	39.25mm	3.0mm	2.35mm	120.16mm
70mm	50mm	49.25mm	3.0mm	2.48mm	105.19mm
70mm	75mm	74.25mm	3.0mm	2.65mm	225.29mm
85mm	100mm	99.25mm	3.0mm	2.74mm	300.39mm
85mm	150mm	149.25mm	3.0mm	2.83mm	450.58mm
100mm	250mm	249.25mm	3.0mm	2.90mm	750.97mm

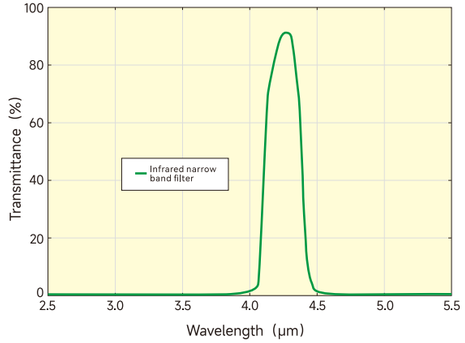
Infrared Filter

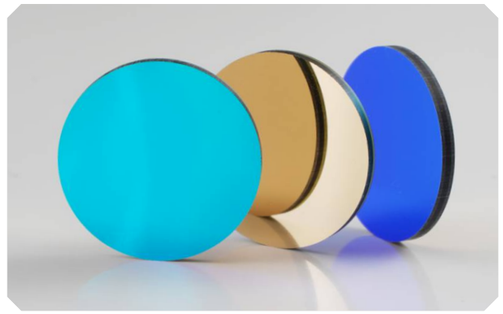
GIAI PHOTONICS
Leading supplier of optical components

Product introduction

Our far-infrared bandpass filters, whose center wavelengths range from 2.0 μm to 25 μm, are coated with silicon, germanium, sapphire, magnesium fluoride, and calcium fluoride. the peak transmission of the filter can be more than 75%. the products have a deep optical density and cutoff band, and can be customized to meet customer requirements.
the products are mainly used in the following areas: infrared thermometers, thermal imaging cameras, and gas detection, etc.

Spectrum demonstrate





Product parameters

Far Infrared Band Pass Filter	
Coating	Vacuum Coating
Substrate	Silicon, Germanium, Magnesium Fluoride, Calcium Fluoride, Sapphire
Working wavelength	1.8~9.5μm、2.5~25μm
Bandwidth	1-10μm
Peak transmittance	T>75%
Clear aperture	> 95%
Surface quality	40-20(S/D)
Environmental tests	MIL-STD-810F

General application

Model number	Application	CWL	FWHM	Transmittance	OD
GA-IRBP-4260	Co2 detection	4260nm	90-380nm	T>70%	UV~11μm@T<1%
GA-IRBP-3900	Methane detector	3900nm	90-170nm	T>70%	UV~11μm@T<1%
GA-IRBP-4650	Carbon oxide detection	4650nm	225nm	T>70%	UV~11μm@T<1%
GA-IRBP-5640	Alcohol detection	5640nm	230nm	T>70%	UV~11μm@T<1%
GA-IRBP-7350	Sulfur oxide detection	7350nm	225nm	T>75%	UV~11μm@T<1%
GA-IRBP-11000	Temperature detection	11000nm	6000nm	T>70%	UV~20μm@T<1%

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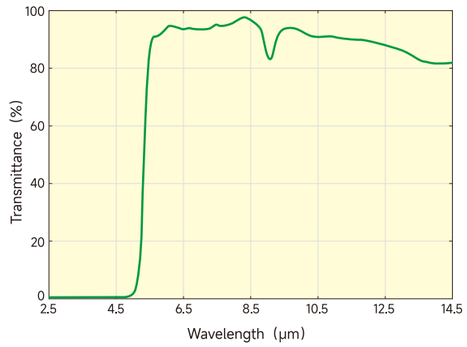
Applicable range

This product is formulated for the quality and specifications of the filter tube cap products manufactured by GiAi .

Spectrum demonstrate



Cap silicon lenses

Product Specification

To46 tube cap + 2.9*2.9*0.5 (filter) + Φ3 silicon lens

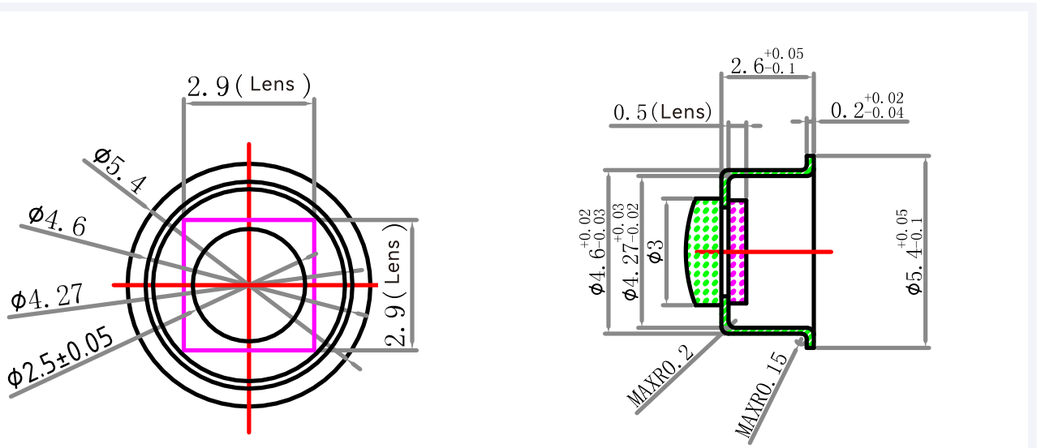
Material

Dome base material: silicon
cap material: SPCC

Optical characteristics

2.5-5μm T<1%,5.5-14μm T>80%

Drawing



GiAi GIAI PHOTONICS
Leading supplier of optical components

Product introduction

Polygon and scanning mirrors have multiple reflective surfaces and are mounted on the rotating shaft of an electric motor. Through the rotation of the motor, Polygon and scanning mirrors coating can realize high reflectivity, wide range, ultra-high speed, high precision and high repeatability laser beam scanning for specific wavelengths of laser light (905nm, 940nm, 1550nm, etc.). Main applications: LIDAR, medical imaging, thin film inspection, material processing, laser printing plate making, printed circuit board inspection and other fields.

OEM

Polygonandscanningmirrors	
Max size	300mm*300mm
Quantity of surface	As per OEM specs
Angle of surface	Angles perpendicular to or at an angle to the base, including irregular angles
Surface shape	Flat or curved
Coating	Any laser wavelength
Installation method	Pivots or holes
Material	Coated Gold； silver； copper etc.

Technical Requirements

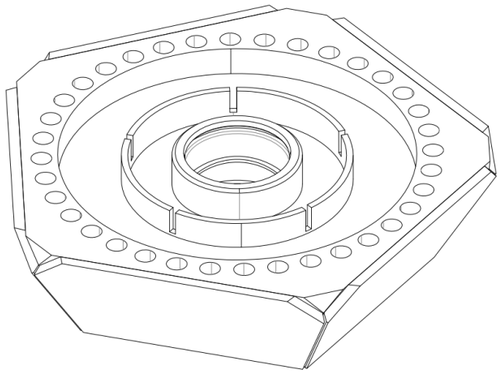
1.Roughness:Ra<7.5nm,Surface Flaw:40-20
Size: PV<1/4@633nm in 10mm diameter test bore
Maximum error of surface slope ≤0.3mrad

2. Optical surface coated with metal film + dielectric film, AOI=10°~40, Reflectance Rave>98%@1520~1560nm

3. See 3D model for unnoted dimensions.

4.Material meets ROHS requirements to meet 2011/65/EU

5. Unannotated dimensions and form tolerances according to 1S02768-1-1989m level/81-2021 implementation IS022081-2021 implementation

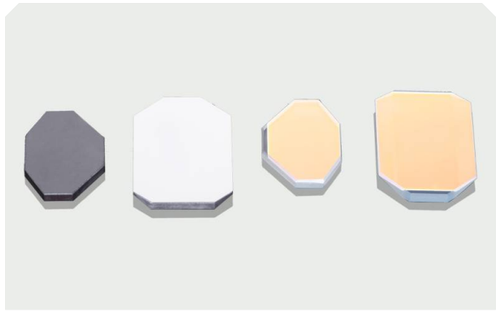


Scanning Galvo Mirror

GiAi GIAI PHOTONICS
Leading supplier of optical components

Product introduction

The principle of operation of the scanning galvo mirror is that the laser beam is sent in to two mirrors (scanning mirrors), and the reflectivity of the mirrors is controlled by a computer. the mirrors can be scanned along the X-axis and Y-axis respectively, so that the laser beam can be deflected and the laser focus, which is of a certain power density, can be moved in a desired manner on the marking material, leaving a permanent mark on the surface of the material.
scanning laser systems all rely on scanning galvo mirror to precisely position the laser beam.



Application areas

Our scanning galvo mirror are suitable for use with YAG, CO2, 1064, and UV mirrors in a wide variety of applications, such as laser marking, laser drilling, and laser welding. they can be used in a variety of applications, such as laser marking, laser drilling, and laser welding.the laser marking, laser drilling, laser welding, etc. can be used in a variety of applications.

Features

- Silicon substrate.
- Thermal stability is superior to fused silica substrates.
- Features a grain structure that meets OEM specifications.
- Highly reflective coating for use with YAG lasers/CO2 scanning galvo mirror/1064 scanning galvo mirror and UV scanning galvo mirror

Conventional model

Model no	Spot diameter	Wavelength	Type	Light incident angle	Coating	Reflectance
GIAI-AOI-10-1064	10mm	1064μm	1064Laser	45°±15	HR@1064nm	R>99%@1064nm
GIAI-AOI-12-1064	12mm	1064μm	1064Laser	45°±15	HR@1064nm	R>99%@1064nm
GIAI-AOI-14-1064	14mm	1064μm	1064Laser	45°±15	HR@1064nm	R>99%@1064nm
GIAI-AOI-16-1064	16mm	1064μm	1064Laser	45°±15	HR@1064nm	R>99%@1064nm
GIAI-AOI-20-1064	20mm	1064μm	1064Laser	45°±15	HR@1064nm	R>99%@1064nm
GIAI-AOI-30-1064	30mm	1064μm	1064Laser	45°±15	HR@1064nm	R>99%@1064nm
GIAI-AOI-10-532	10mm	532μm	532Laser	45°±15	HR@532nm	R>99%@532nm
GIAI-AOI-12-355	12mm	355μm	355Laser	45°±15	HR@355nm	R>99%@355nm
GIAI-AOI-12-10600	10mm	10600μm	Co2Laser	45°±15	HR@10600nm	R>99%@10600nm

ZnSe Lens

GiAi GIAI PHOTONICS
Leading supplier of optical components

Product introduction

GiAi's ZnSe lens focusing mirrors and ZnSe lens semi-reflective mirrors, available in both domestic and imported versions, have been created to withstand high power densities and have a strong, peel-resistant, wipe-resistant surface coating. ZnSe lens bifacially coated with magnesium to increase transmittance can achieve 99% transmittance in the 10.6μm band commonly used in the CO2 laser industry.

Conventional model

Model	Diameter	Focal length(mm)	Wavelength	Edge thickness	Surface flatness	Substrate
GIAI-P-D12	12mm	25.4/38.1/41/50.8/63.5/101.6/127	10.6μm	2mm	plano-convex	ZnSe
GIAI-P-D18	18mm	25.4/38.1/41/50.8/63.5/101.6/127	10.6μm	2mm	plano-convex	ZnSe
GIAI-P-D19	19mm	25.4/38.1/41/50.8/63.5/101.6/127	10.6μm	2mm	plano-convex	ZnSe
GIAI-P-D20	20mm	25.4/38.1/41/50.8/63.5/101.6/127	10.6μm	2mm	plano-convex	ZnSe
GIAI-P-D25	25mm	25.4/38.1/41/50.8/63.5/101.6/127	10.6μm	2.5mm	plano-convex	ZnSe
GIAI-P-D25.4	25.4mm	25.4/38.1/41/50.8/63.5/101.6/127	10.6μm	3mm	plano-convex	ZnSe
GIAI-P-D30	30mm	25.4/38.1/41/50.8/63.5/101.6/127	10.6μm	3.5mm	plano-convex	ZnSe
GIAI-P-D38.1	38.1mm	25.4/38.1/41/50.8/63.5/101.6/127	10.6μm	5mm	plano-convex	ZnSe

Product parameters

Focusing lens	
Material	ZnSe
Focal length (f')	±2%@10.6 μm
Dimensional tolerances	+0/-0.2m
Center thickness tolerance	±0.1mm
Centering (arcmin)	3′
Power	3
Irregularity	0.5
Surface quality	60-40
Clear aperture	>90%
Coating	10.6μmAR coating

Our advantages

Our products are optimized for both diffraction and aberration, and we have developed a series of products that minimize the actual spot diameter at the same focal length. These products can be individually designed to meet the needs of customers for different focal lengths, back focal lengths, mirror apertures, and diameters of incoming light.The design can be customized to meet different requirements for focal length, back focal length, and diameter of incoming light.

GIAI PHOTONICS
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Industrial lens

The following industrial lenses are commonly used: CCTV lenses (the field of view can be adjusted arbitrarily and is suitable for a wide field of view); telecentric lenses (high subject accuracy, no perspective errors); macro lenses (TV low distortion - small, lightweight and vibration-resistant); line-scanning lenses (low distortion, small shadows, good resistance to vibration); zoom lenses (a wide range of fixed-focus lenses can be used to change the focus at any time without the need to replace the lens); collimating lenses (to convert light transmitted in the optical fibers into collimated light (flat); UV lenses, infrared lenses, and military lenses); and other lenses. beam expanding lenses (can convert light transmitted in optical fibres into collimated (parallel) light); UV lenses, infrared lenses, and military lenses.

CCTV lens

The CCTV lenses is short of closed circuit television (CCTV) lenses, i.e., lenses used for closed circuit television (CCTV) can also be called surveillance lenses, which are generally used on high-level video surveillance cameras, and there are also manual and automatic lenses.

the CCTV lenses produced GIAI have a high-definition image, sharpness in the centre, good colour reproduction, LOMO/"panning" effect, nice appearance, good tactile sensation. they are widely used for a wide variety of surveillance and educational purposes.

Telecentric lens

Giai photonics telecentric Lens offers high resolution, low distortion, and a much greater depth of field than conventional lenses. the ultra-small form factor extends the range of applications for which the aficio lens can be used. Ideal for high-precision industrial machine vision inspection

Collimating lens

Since the laser beam emitted from the laser is divergent, for laser processing, the laser beam can be collimated (flattened) by adjusting the beam expander to obtain a small, high-resolution density spot using the focusing mirror. used for laser distance measurement, etc.

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Customized and design different kind of lens.

Rifle lcopes

Rifle Scopes is an aiming device that utilises optics and consists of a lens, a mirror body and an illumination device. lens surface coatings typically, scopes with multiple layers of coatings provide better light transmission than scopes with single or no coatings. Good quality scopes typically have three to seven layers of coatings, each of which is a complex process, and the more layers of coatings, the higher the price. high-quality scopes do not create any distortions in the image, and there is no difference in brightness between the edge of the image and the centre of the image.

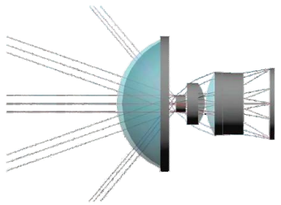
Could customized as per customer's application and parametric

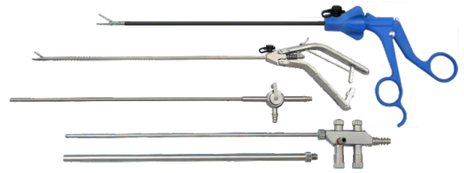
Infrared lens

Professional customised infrared optical imaging lens 800nm-8000nm selectable wavelength. principle of operation: far-infrared light (8~12 microwaves) emitted by an object at 0~100 degrees celsius is focussed by an infrared optical lens and then imaged on a surface array detector made of vanadium oxide material. the characteristic of this optical system is that the higher the surface temperature of the object, the higher the grey value of the imaged object, i.e. the higher the brightness. this type of camera is used primarily for night vision, tracking of military missiles or aircraft, and for the detection of the presence of a large number of objects.

Endoscopic lens

The endoscope,is a commonly used medical device. It consists of a flexible part, a light source, and a lens. the endoscope is inserted into the human body through smal holes.guided endoscope into organ for checking direct visualisation of changes Giai photonics could custom could customized medical endoscopes, capsule scopes, endoscopes, and other medical device lenses according to required specific parameters,include focal length, angularity, and volume needed by the customer.





Design/Customized Lens

GIAI PHOTONICS
Leading supplier of optical components

Photography lenses

Selecting a camera/SLR lens, in addition to check the lens image quality, also need to check the appearance,operation to see if it's mach with camera to use

the mechanical system of the lens is mainly: lens barrel, aperture leaf, aperture adjustment ring, focus ring, zoom ring and related adjustment mechanism

the optical lens system mainly include lens, reflector,built-in filter. Giai Photonics uses a large group of autofocus lenses,from ultra-circular to ultra-crystalline,from macro to soft-focus,choose the lenses that you need

tased on larger sensor area, digital camera could take amazing photos

Mobilephone lenses

fisheye lens: like fish eye visual effect, allowing images in the 180-degree viewing angle to have a conscious residual spherical aberration, photographed the straight line to curved effect, creating a distinctive distortion effect if changed the top, horizontal, or elevated angel.

wide angled lenses: aberration-resistant, darkness-free, perfect to take picture indoor or for group. super-refractive lenses are large-format/wide depth-of-field, fast aperture,suitable for landscape and photojournalism

macro lens: macro photography could transform an ordinary scene into a dramatic one, and is good at revealing small things such as flowers, insects, and jewellery, fully demonstrate the details for small product.

Standard lenses

Standard lenses with focal lengths ranging from 40 mm to 60 mm, these lenses view provide most real visual effect , since the lens visual angle close to human eye scope.
the focal length is close to the diagonal of the film, excellent image quality, simple construction, and large light throughput,standard equipment with cameras.

Medium focal length lenses

Lenses with focal lengths ranging from 70mm to 135mm are called medium focal length lenses.
medium focal length lenses have a moderate focal length, are well-corrected for aberration, and are mostly used for high-speed photography, providing good perspective and a comfortable, natural feel.
widely used for portraiture, macrophotography, and other subjects.

Focal length lenses

Optical focal length range above 135mm or more are known as a gonzo focal length lens.
long focal length lenses, due to narrow viewing angle, it could bring distant objects closer and create a larger image on film, so that with stronger sense of perspective and compression, enable to separating the subject from the background.
It is mainly used for long-distance or close-up photography.

Camera Lens Filter

GIAI PHOTONICS
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We have department specialized for photography filter research and development

CPL

A polarising filter is normally used in photographic equipment; it removes polarised light from non-metallic surfaces, such as reflections on glass, wood, paint surfaces, water surfaces, car surfaces, etc. It can also remove polarised light from the sky at certain angles to make blue skies bluer. Polarised light can also be filtered out of the sky when shooting at a certain angle to make the blue sky bluer

Black mist filters

Black mist Filters play an important role in photography, normally used in cinematography. they can greatly improve the softening and beautification of the human face, softening skin imperfections such as wrinkles, blemishes, and holes, for a beautifully hazy cinematic effect. the excellent black mist filters have no effect on colour temperature, and can be used in dark scenes to create a foggy, hazy, moody image that sets the mood for the scene.

GND filter (Graduated ND filter)

GND filter, known as gradient neutral grey density scrims, can be divided into gradient lenses and gradient diffusion lenses, and in terms of the form of the gradient, they can be divided into soft gradients and hard gradients. Soft" means that the transition range is large, and "soft" means that the transition range is small, both of which should be used in accordance with the characteristics of the work. Suitable for photographing large photographs in floodligh

ND filters

ND filters are also known as medium grey filters and are used to filter light. this filtering effect is non-selective, meaning that ND filters have equal and uniform power to reduce light of all wavelengths, attenuating light without affecting the colour of the original object, thus reproducing the contrast of a scene in a realistic manner.

Star filters

Star filters is a type of camera lens filters centred on a luminous point and consisting of four, six, or eight lines, which create a radiant effect by diffracting light from a series of flat, regular lines on the surface of a nonhazardous optical glass. this is an essential effect filter when photographing a stage or a night scene, and it can make a significant difference to the image.

Camera Lens Filter

GIAI PHOTONICS
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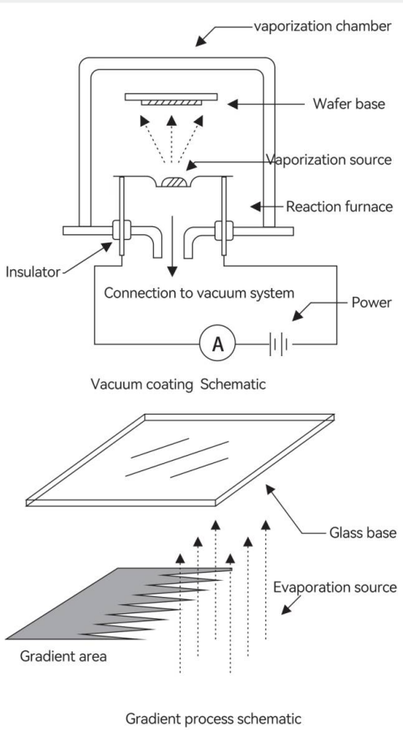
Production process

Based on the demand, market positioning of the product, design the optical index drawing meet the standard.

Matching film layers and coating technology are designed according to the drawings, and vacuum coating is performed using foreign imported coating machines.

Under CNC cutting, grinding, polishing, rounding and chamfering, fine engraving, ultrasonic cleaning and other cold processing.

Under advanced optical spectroscopic testing equipment, strict to choose and test the quality products, testing include specifications, appearance, and film hardness tests ect.



Professional film coating technology

The method of evaporating (or sputtering) metals, compounds, or compounds in a vacuum and depositing them on the object (substrate) to be coated is called vacuum coating. a thin film can be coated on the surface of a material to give it many new physical and chemical properties.

In the past, use electroplating and chemical plating,the issue is difficult to controlling the thickness, poor film uniformity, poor adhesion, environmental pollution. evaporation coating involves heating and evaporating the material used to make the film in a vacuum coating chamber, causing it to precipitate on a suitable surface. the special effect of a gradient filter is the use of a saw blade to create a uniform transition between areas of differing density.

Normal size (mm)	
Round	Φ46、Φ52、Φ55、Φ58、Φ67、Φ72、Φ77、Φ82
Square	75*100、100*150、150*170

Certificates

GIAI PHOTONICS
Leading supplier of optical components

Highly technology enterprise certificates

AAA-ranked credit enterprise

Vice-presidential unit