RUIKE OPTICS

Changchun Ruike Optics Co.,ltd

Address: No 5099,Fanrong Road,Chaoyang,130000,China.

Email:sales@ruikeoptics.com

Mobile:86-15844091752

www.ruikeoptics.com

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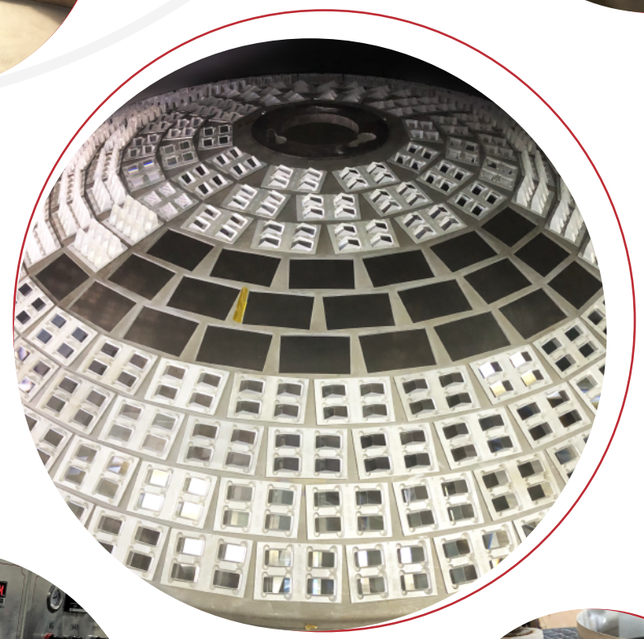
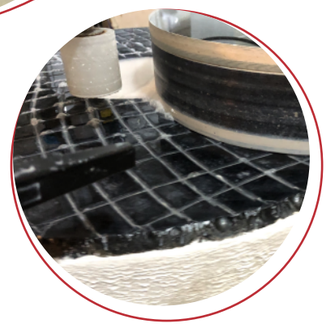
COMPANY PROFILE

Changchun Ruike Optics Co.,ltd

Ruike Optics is a leading manufacture of optical components and coatings, located in Changchun city. We have a 2000 square meter factory, and more than 30 engineers.the mainly products include: Spherical Lens, Cylindrical Lens,Aspheric Lens, Big Windows, Prisms, Mirrors,Filters and specical coating.We do cutting, grinding,polishing,coating, gule ourself,which can promise fast shipping. We have Zygo Inteferometer, Focal Length Meter,Angular Instruments.Our target is High Precision but not expensive.





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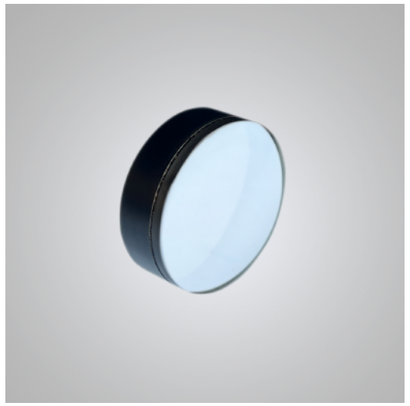
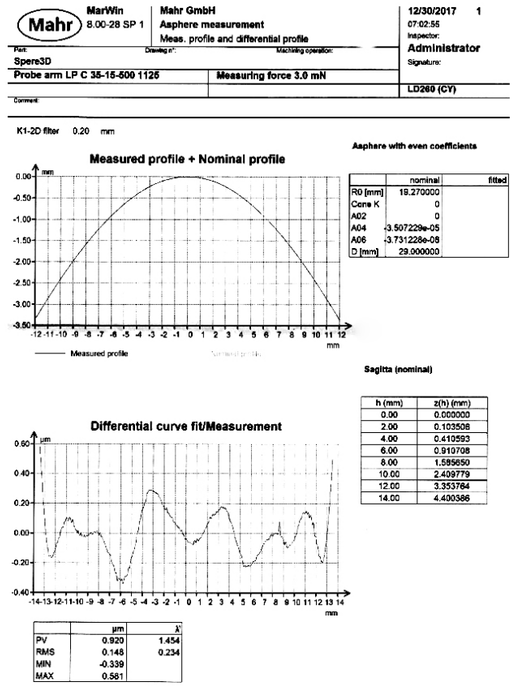
PRODUCT INTRODUCTION

Aspheric Lens



Ruike Optics manufacture High Precision Aspheric Lens manly used for imaging camera,Medical Equipment and lasers.



Aspheric lens can increase the freedom of optical design, it is conducive to aberration correction, improve image quality and improve the performance of optical system. Ruike Optics combine CNC and traditional polish. 10-300mm available.

Size:10-300mm **Material:**Optical Glass, CaF2 IR Glass. PV<1um AR Coating.

Ball Lens

Stock BK7/H/K9L Ball Lens

Part No	Material	Specifications	Diameter Tolerance	Sphericity
BK9001	H-K9L	0.3mm	+/-0.005mm	0.002mm
BK9002	H-K9L	0.4mm	+/-0.005mm	0.002mm
BK9003	H-K9L	0.5mm	+/-0.005mm	0.002mm
BK9004	H-K9L	0.6mm	+/-0.005mm	0.002mm
BK9005	H-K9L	0.7mm	+/-0.005mm	0.002mm
BK9006	H-K9L	0.8mm	+/-0.005mm	0.002mm
BK9007	H-K9L	0.9mm	+/-0.005mm	0.002mm
BK9008	H-K9L	1mm	+/-0.005mm	0.002mm
BK9009	H-K9L	1.25mm	+/-0.005mm	0.002mm
BK9010	H-K9L	1.27mm	+/-0.005mm	0.002mm
BK9011	H-K9L	1.5mm	+/-0.005mm	0.002mm
BK9012	H-K9L	1.6mm	+/-0.005mm	0.002mm
BK9013	H-K9L	1.64mm	+/-0.005mm	0.002mm
BK9014	H-K9L	1.7mm	+/-0.005mm	0.002mm
BK9015	H-K9L	1.8mm	+/-0.005mm	0.002mm
BK9016	H-K9L	2mm	+/-0.005mm	0.005mm
BK9017	H-K9L	3mm	+/-0.005mm	0.005mm
BK9018	H-K9L	4mm	+/-0.005mm	0.005mm
BK9019	H-K9L	5mm	+/-0.005mm	0.005mm
BK9020	H-K9L	5.18mm	+/-0.005mm	0.005mm
BK9021	H-K9L	5.5mm	+/-0.005mm	0.005mm
BK9022	H-K9L	6mm	+/-0.005mm	0.005mm
BK9023	H-K9L	7mm	+/-0.005mm	0.005mm
BK9024	H-K9L	8mm	+/-0.005mm	0.005mm
BK9025	H-K9L	8.26mm	+/-0.005mm	0.005mm
BK9026	H-K9L	9mm	+/-0.005mm	0.005mm
BK9027	H-K9L	10mm	+/-0.005mm	0.005mm
BK9028	H-K9L	15mm	+/-0.005mm	0.005mm
BK9029	H-K9L	16mm	+/-0.005mm	0.005mm
BK9030	H-K9L	17.72mm	+/-0.005mm	0.005mm
BK9031	H-K9L	18mm	+/-0.005mm	0.005mm
BK9032	H-K9L	20mm	+/-0.01mm	0.01mm
BK9033	H-K9L	23mm	+/-0.01mm	0.01mm
BK9034	H-K9L	25mm	+/-0.01mm	0.01mm
BK9035	H-K9L	25.4mm	+/-0.01mm	0.01mm

Stock BK7/H/K9L Ball Lens

Part No	Material	Specifications	Diameter Tolerance	Sphericity
BK9036	H-K9L	28.25mm	+/-0.01mm	0.01mm
BK9037	H-K9L	30mm	+/-0.01mm	0.01mm
BK9038	H-K9L	35mm	+/-0.01mm	0.01mm
BK9039	H-K9L	38mm	+/-0.01mm	0.01mm
BK9040	H-K9L	40mm	+/-0.03mm	0.01mm
BK9041	H-K9L	50mm	+/-0.04mm	0.05mm
BK9042	H-K9L	60mm	+/-0.04mm	0.05mm
BK9043	H-K9L	80mm	+/-0.05mm	0.05mm
BK9044	H-K9L	100mm	+/-0.1mm	0.05mm
BK9045	H-K9L	150mm	+/-0.2mm	0.05mm

Stock JGS1 Ball Lens

Part No	Material	Specifications	Diameter Tolerance	Sphericity
BS1001	JGS1	0.5mm	+/-0.005mm	0.002mm
BS1002	JGS1	0.6mm	+/-0.005mm	0.002mm
BS1003	JGS1	0.9mm	+/-0.005mm	0.002mm
BS1004	JGS1	1.0mm	+/-0.005mm	0.002mm
BS1005	JGS1	1.25mm	+/-0.005mm	0.002mm
BS1006	JGS1	2mm	+/-0.005mm	0.002mm
BS1007	JGS1	2.5mm	+/-0.005mm	0.002mm
BS1008	JGS1	3mm	+/-0.005mm	0.002mm
BS1009	JGS1	3.175mm	+/-0.005mm	0.002mm
BS1010	JGS1	4mm	+/-0.005mm	0.002mm
BS1011	JGS1	4.7mm	+/-0.005mm	0.002mm
BS1012	JGS1	5mm	+/-0.005mm	0.002mm
BS1013	JGS1	6mm	+/-0.005mm	0.002mm
BS1014	JGS1	6.35mm	+/-0.005mm	0.002mm
BS1015	JGS1	7mm	+/-0.005mm	0.002mm
BS1016	JGS1	8mm	+/-0.005mm	0.005mm
BS1017	JGS1	9mm	+/-0.005mm	0.005mm
BS1018	JGS1	10mm	+/-0.005mm	0.005mm

Part No	Material	Specifications	Diameter Tolerance	Sphericity
BS1019	JGS1	12mm	+/-0.005mm	0.005mm
BS1020	JGS1	20.2mm	+/-0.005mm	0.005mm
BS1021	JGS1	14mm	+/-0.005mm	0.005mm
BS1022	JGS1	15mm	+/-0.005mm	0.005mm
BS1023	JGS1	16mm	+/-0.005mm	0.005mm
BS1024	JGS1	20mm	+/-0.01mm	0.01mm
BS1025	JGS1	25mm	+/-0.01mm	0.01mm
BS1026	JGS1	30mm	+/-0.01mm	0.01mm
BS1027	JGS1	35mm	+/-0.01mm	0.01mm
BS1028	JGS1	40mm	+/-0.01mm	0.01mm
BS1029	JGS1	50mm	+/-0.03mm	0.01mm
BS1030	JGS1	60mm	+/-0.03mm	0.01mm
BS1034	JGS1	80mm	+/-0.05mm	0.01mm

Stock Ruby Ball Lens

Part No	Material	Specifications	Diameter Tolerance	Sphericity
BR000	Ruby	0.6mm	+/-0.005mm	0.001mm
BS001	Ruby	1mm	+/-0.005mm	0.001mm
BS002	Ruby	1.5mm	+/-0.005mm	0.001mm
BS003	Ruby	1.6mm	+/-0.005mm	0.001mm
BS004	Ruby	2mm	+/-0.005mm	0.001mm
BS005	Ruby	2.5mm	+/-0.005mm	0.001mm
BS006	Ruby	3mm	+/-0.005mm	0.001mm
BS007	Ruby	4.762mm	+/-0.01mm	0.005mm
BS008	Ruby	5.55mm	+/-0.01mm	0.005mm
BS009	Ruby	6.53mm	+/-0.01mm	0.005mm
BS010	Ruby	8mm	+/-0.01mm	0.005mm
BS011	Ruby	8.96mm	+/-0.01mm	0.01mm
BS012	Ruby	9.525mm	+/-0.01mm	0.01mm
BS013	Ruby	9.5mm	+/-0.01mm	0.01mm
BS014	Sapphire	15mm	+/-0.01mm	0.01mm
BS015	Sapphire	16mm	+/-0.02mm	0.01mm

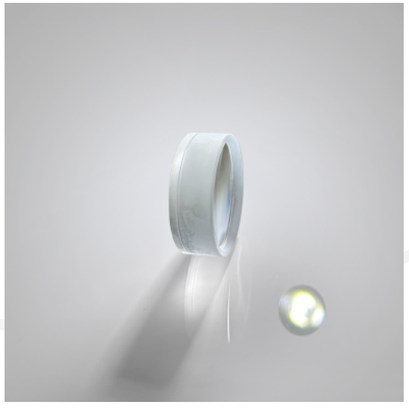
Stock Sapphire Ball Lens

Part No	Material	Specifications	Diameter Tolerance	Sphericity
BS000	Sapphire	0.5mm	+/-0.005mm	0.001mm
BS001	Sapphire	1mm	+/-0.005mm	0.001mm
BS002	Sapphire	1.5mm	+/-0.005mm	0.001mm
BS003	Sapphire	2mm	+/-0.005mm	0.001mm
BS004	Sapphire	2.38mm	+/-0.005mm	0.001mm
BS005	Sapphire	2.5mm	+/-0.005mm	0.001mm
BS006	Sapphire	3mm	+/-0.005mm	0.001mm
BS007	Sapphire	3.175mm	+/-0.005mm	0.001mm
BS008	Sapphire	3.52mm	+/-0.01mm	0.005mm
BS009	Sapphire	3.97mm	+/-0.01mm	0.005mm
BS010	Sapphire	4mm	+/-0.01mm	0.005mm
BS011	Sapphire	4.6mm	+/-0.01mm	0.005mm
BS012	Sapphire	4.7mm	+/-0.01mm	0.005mm
BS013	Sapphire	4.762mm	+/-0.01mm	0.005mm
BS014	Sapphire	5mm	+/-0.01mm	0.005mm
BS015	Sapphire	6mm	+/-0.02mm	0.01mm
BS016	Sapphire	6.35mm	+/-0.02mm	0.01mm
BS017	Sapphire	6.7mm	+/-0.02mm	0.01mm
BS018	Sapphire	7mm	+/-0.02mm	0.01mm
BS019	Sapphire	8mm	+/-0.02mm	0.01mm
BS020	Sapphire	9mm	+/-0.02mm	0.01mm
BS021	Sapphire	10mm	+/-0.02mm	0.01mm
BS022	Sapphire	12mm	+/-0.02mm	0.01mm
BS023	Sapphire	15mm	+/-0.02mm	0.01mm
BS024	Sapphire	16mm	+/-0.02mm	0.01mm
BS025	Sapphire	20mm	+/-0.02mm	0.01mm
BS026	Sapphire	25.4mm	+/-0.02mm	0.01mm
BS027	Sapphire	30mm	+/-0.02mm	0.01mm

Stock Silicon Ball Lens

Part No	Material	Specifications	Diameter Tolerance	Sphericity
BSL000	Silicon	0.8mm	+/-0.005mm	0.005mm
BSL001	Silicon	0.85mm	+/-0.005mm	0.005mm
BSL002	Silicon	0.9mm	+/-0.005mm	0.005mm
BSL003	Silicon	3.175mm	+/-0.005mm	0.001mm
BSL004	Silicon	5mm	+/-0.005mm	0.005mm
BSL005	Silicon	10mm	+/-0.005mm	0.001mm
BSL006	Silicon	12mm	+/-0.005mm	0.005mm
BSL007	Silicon	20mm	+/-0.005mm	0.001mm
BSL008	Silicon	1*0.64mm	+/-0.005mm	0.005mm
BSL009	Silicon	3.4*1.9mm	+/-0.005mm	0.001mm
BSL010	Silicon	10*4.6mm	+/-0.005mm	0.005mm
BSL011	Silicon	10*6.5mm	+/-0.005mm	0.001mm
BSL012	Silicon	12*6mm	+/-0.005mm	0.005mm
BSL013	Silicon	15.65*7.825mm	+/-0.005mm	0.001mm
BSL014	Silicon	15*9.5mm	+/-0.005mm	0.005mm
BSL015	Silicon	16*8mm	+/-0.005mm	0.001mm

Spherical Lens

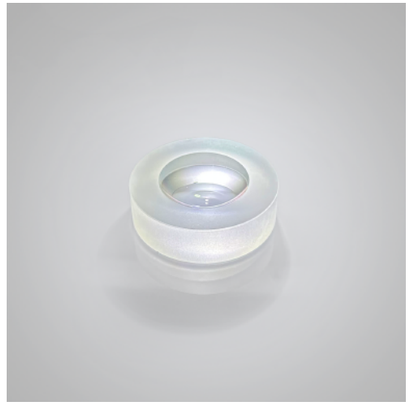


Achromatic Lens

Achromatic Lenses consists of two positive and negative lenses with different refractive indices bonded together. They have corrected for spherical aberration at both axial and paraxial points. When a double-bonded lens is used for focusing or collimating, the surface with a small radius of curvature faces the collimating light.The optical performance of achromatic double-bonded lenses is much better than that of single lenses and is suitable for demanding imaging and beam control needs.Our lenses are carefully processed, strictly controlled quality, to ensure that at a reasonable price to provide users with high quality lens products.

Parameter of Achromatic Lens

Material:BK7 Fused Silica CaF2 MgF2 Sapphire Germanium Silicon ZnSe ZnS.
Diameter:0.5-600mm
Dia Tolerance:+/-0.02mm
Thickness Tolerance:+/-0.01mm
Centeration<30 arcmin
Flatness<1/20 lambda
Surface Quality:10-5
Coating: AR BBAR HR.



Double Concave Lens

Double concave lens has negative focal length like plano concave lens. But Parallel incident rays diverge outwards.The principle of the geometric mapping for the imaging of the double concave lens is the same as that of the convex lens. From the top of the object are also two straight lines: one parallel to the main optical axis, after passing through the double concave lens deflected into the divergent light, the refracted light back to the main focus in the opposite direction; The other passes through the optical center of the lens, and these two lines intersect at a point, which is the image of the object.

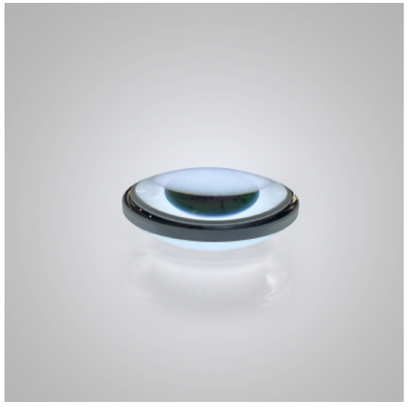
Parameter of Bi Convex Lens

Material:BK7 Fused Silica CaF2 MgF2 Sapphire Germanium Silicon ZnSe ZnS.
Diameter:0.5-600mm
Dia Tolerance:+/-0.02mm
Thickness Tolerance:+/-0.01mm
Centeration<30 arcmin
Flatness<1/20 lambda
Surface Quality:10-5
Coating: AR BBAR HR.

The Common glass Refractive index

Material	Refractive index(n)	Design wavelength(λ)
Fused Silica	1.458	587.6nm
K9	1.517	587.7nm
CaF2	1.434	587.8nm
ZnSe	2.403	10.6μm
Silicon	3.425	4μm
Germanium	4.003	10.6μm

Spherical Lens



Double Convex Lens

The Double Convex Lenses present an identical convex surface on both sides of the lens. They have a positive focal length and are useful for 1:1 imaging and in multielement systems.
The lens can be made by BK7 Fused Silica CaF2 Sapphire Ge Silicon ZnSe etc.When light passes through a convex lens, it focuses, or focuses, on the central axis of the lens. The degree of focusing depends on the radius of curvature of the lens surface and the refractive index of the lens material. They are widely used in optical systems such as camera lenses, microscopes, and telescopes. Convex lenses can also be used in combination with other lenses, such as plano-convex lenses, to create a lens system with specific properties, such as a telescope objective or a microscope eyepiece.

The Common glass Refractive index

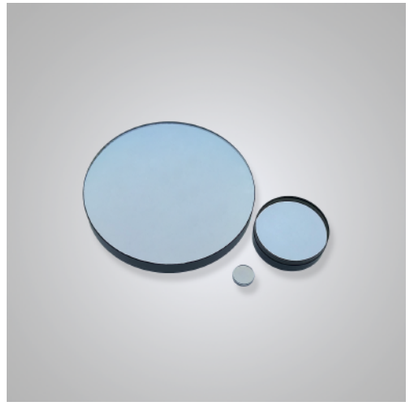
Material	Refractive index(n)	Design wavelength(λ)
Fused Silica	1.458	587.6nm
K9	1.517	587.7nm
CaF2	1.434	587.8nm
ZnSe	2.403	10.6μm
Silicon	3.425	4μm
Germanium	4.003	10.6μm

How to Calculate Focal length of Double Convex Lens?

f= (R1xR2)/((n-1)x(R2-R1)
F is the focal length of the lens
n is the refractive index of the lens
R is the curvature radius of the lens

Parameter of Bi Convex Lens

Material:BK7 Fused Silica CaF2 MgF2 Sapphire Germanium Silicon ZnSe ZnS.
Diameter:0.5-600mm
Dia Tolerance:+/-0.02mm
Thickness Tolerance:+/-0.01mm
Centeration<30 arcmin
Flatness<1/20 lambda
Surface Quality:10-5
Coating: AR BBAR HR.



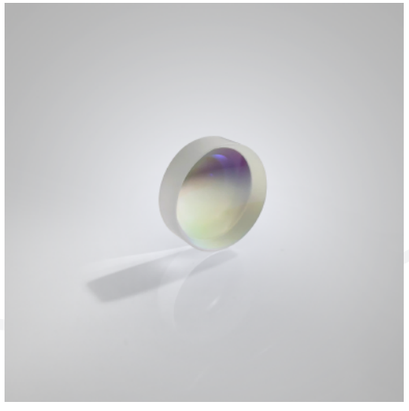
Meniscus lens

Meniscus Lenses are convex and concave lenses. If the Convex curvature is bigger than concave , the lens will be positive meniscus lens. If the concave curvature is bigger than the convex.
Positive Meniscus Lenses may be used to increase the numerical aperture of a positive lens assembly, without an undue increase in the aberrations. Negetive Meniscus Lenses are the best lens form where one conjugates is relatively far from the lens or where both conjugates are the same size of the lens.
Meniscus lenses are used to reduce spherical aberration to a large extent.Smaller focal points and fewer aberrations can be obtained than plano-convex lenses.

Parameter of Meniscus Lens

Material:BK7 Fused Silica CaF2 MgF2 Sapphire Germanium Silicon ZnSe ZnS.
Diameter:0.5-600mm
Dia Tolerance:+/-0.02mm
Thickness Tolerance:+/-0.01mm
Centeration<30 arcmin
Flatness<1/20 lambda
Surface Quality:10-5
Coating: AR BBAR HR.

Spherical Lens



Plano Concave Lens

Plano-concave lenses are used for beam expansion.A beam of parallel light is concerted into a diverging light, and the diverging light is reversely focused on the virtual focal point of the flat concave lens. The focal length is negative, and one side is flat, another side is concave.

A plano concave lens emits a collimated beam from a virtual focus, usually used in a Galilean beam expander.

Ruike Optics manufacture plano concave lens with material BK7, Fused Silica,CaF2, Sapphire, Silicon, Germanium with AR Coating.

The Common glass Refractive index

Material	Refractive index(n)	Design wavelength(λ)
Fused Silica	1.458	587.6nm
K9	1.517	587.7nm
CaF2	1.434	587.8nm
ZnSe	2.403	10.6μm
Silicon	3.425	4μm
Germanium	4.003	10.6μm

How to calculate Focal length of PCV?

F=R/(n-1)

F is the focal length of the lens

n is the refractive index of the lens

R is the curvature radius of the lens

Parameter of Plano Concave Lens

Material:BK7 Fused Silica CaF2 MgF2 Sapphire Germanium Silicon ZnSe ZnS.

Diameter:0.5-600mm

Dia Tolerance:+/-0.02mm

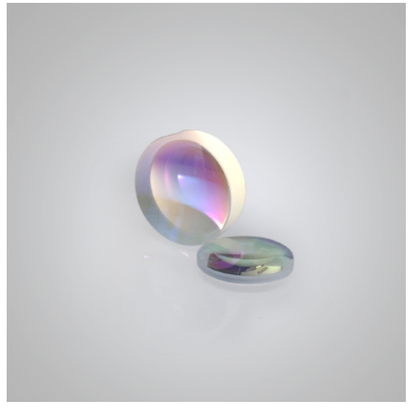
Thickness Tolerance:+/-0.01mm

Centeration<30 arcmin

Flatness<1/20 lambda

Surface Quality:10-5

Coating: AR BBAR HR.



Plano Convex Lens

Plano Convex Lens (PCX) focus parallel rays of light into a single point which is the lens focal length.It is suitable for accumulation and focal length light and is ideal for emitter, detector and laser applications.

Plano-convex lenses, convex on one side and flat on the other, have a positive focal length and are commonly used for related applications such as reducing the beam, reducing the focal length, or enlarging an image. In order to reduce spherical aberration, when a plano convex lens is used for collimating beam focusing, the beam should be incident on the surface of the lens. When used for point source collimation, the beam is incident on a plane.

A plano convex lens focuses light into a single point. It is often used for aiming and focusing monochromatic light sources. When in use, the convex surface faces the incident light. Ruike Optics offers plano convex lenses coated with anti-reflection film.

Germanium, Silicon or Zinc Selenide substrates are suitable for infrared applications, while fused quartz bk7 CaF2 are suitable for ultraviolet applications.

The Common glass Refractive index

Material	Refractive index(n)	Design wavelength(λ)
Fused Silica	1.458	587.6nm
K9	1.517	587.7nm
CaF2	1.434	587.8nm
ZnSe	2.403	10.6μm
Silicon	3.425	4μm
Germanium	4.003	10.6μm

How to calculate Focal length of PCX?

F=R/(n-1)

F is the focal length of the lens

n is the refractive index of the lens

R is the curvature radius of the lens

Parameter of Plano Convex Lens

Material:BK7 Fused Silica CaF2 MgF2 Sapphire Germanium Silicon ZnSe ZnS.

Diameter:0.5-600mm

Dia Tolerance:+/-0.02mm

Thickness Tolerance:+/-0.01mm

Centeration<30 arcmin

Flatness<1/20 lambda

Surface Quality:10-5

Coating: AR BBAR HR.

Cylindrical Lens

Cylindrical lenses are generally used to focus parallel or divergent beams onto a line or to change the aspect ratio of the image. Cylindrical lenses are generally designed for applications where one-dimensional shaping of the light source is required. They have two structures, flat - concave and convex, which are used for divergent or converging beams respectively. Plano-convex cylindrical lenses focus the incoming light onto the line and have a positive focal length consisting of one plane and one convex cylinder, while plano-concave cylindrical lenses have a negative focal length consisting of one plane and one concave cylinder.

Specifications:

Structure: Cylindrical Lens
Material: Optical Glass,BK7,H-K9L,UVFS,Germanium,Silicon,-CaF2,,ZnSe,ZnS
Dia.0.35-700mm
Dia.Tol.+0.00/-0.01mm
Surface Quality:10-5
Surface Irregulatiry:λ/10 @632.8nm or customer design
Thickness tolerance:+0/-0.02mm
Clear Aperture>90% of diameter
Centeration< 10 arcsec

Laser Lens

Collimator lens

Ruike Optics Assambly glass aspheric, 3 lens collimator lenses, they are mainly for lasers.
Standard size is M9*0.5*8mm or M9*0.5*10mm.
EFL:2mm 4mm 6.2mm 10mm are available.

Powell Lens

Powell lenses are available in fan angle from 2deg to 110deg.The typical angles are 15,30,45deg,60deg and 90deg. Each optical line generator lens is optimized for a 0.4mm input laser beam diameter and will convert the beam into uniform, straight line. Using the Aspherical Powell-glass lens design will result in an impressive, even distribution of energy along the length of the line. These lenses offer excellent overall stability and line quality. They outperform cylindrical lenses which generate Gaussian beam profiles with hot-spot center points and fading edges. Originally designed for laser line generator, they are now offered unmounted for a variety of custom applications, including: used in alignment, machine version systems, construction and process control.

Specifications:

Material:JGS1 BK7
Fan Angle:2-110 degree
Uniformity>80%
Straightness>99.9%
AR Coating

Optical Filter

Ruike Optics manufacture narrow bandpass filter, Long pass filter, short pass filter, Dichroic filter.

Narrow band interference filter is a kind of optical component with a very narrow half-bandwidth, which can allow a certain band of light to pass through, and allow other bands of light to cut off (or high inverse), without interference from other light.

Our company's interference filter adopts medium hard film, ion assisted deposition technology, evaporates in high vacuum, the film layer is firm and high, good density, imaging clear

220nm Narrow bandpass filter
Dia:25.4 +0.0/-0.1mm
Flatness:1.5-2.5 lambda@632.8nm
Surface Quality:60-40
Center Wavelength:254 +/-2nm
FWHM:12 +/-2nm
Blocking:T<10-5@190-1200nm

275nm Narrow bandpass filter
Dia20+0.0/-0.1mm
Flatness:1.5-2.5 lambda@632.8nm
Surface Quality:60-40
Center Wavelength:280 +/-2nm
FWHM:12 +/-2nm
Blocking:T<10-5@200-1200nm

340nm Narrow bandpass filter
Dia10/25.4+0.0/-0.1mm
Flatness:1.5-2.5 lambda@632.8nm
Surface Quality:60-40
Center Wavelength:340+/-2nm
FWHM:10 +/-2nm
Blocking:T<10-5@200-1200nm

450nm Narrow bandpass filter
Dia10/25.4+0.0/-0.1mm
Flatness:1.5-2.5 lambda@632.8nm
Surface Quality:60-40
Center Wavelength:450+/-2nm
FWHM:8 +/-2nm
Blocking:>OD6

546nm Narrow bandpass filter
Dia10/25.4+0.0/-0.1mm
Flatness:1.5-2.5 lambda@632.8nm
Surface Quality:60-40
Center Wavelength:546+/-2nm
FWHM:8 +/-2nm
Blocking:>OD6

850nm Narrow bandpass filter
Dia10/25.4+0.0/-0.1mm
Flatness:1.5-2.5 lambda@632.8nm
Surface Quality:60-40
Center Wavelength:850+/-2nm
FWHM:15 +/-2nm
T>70%
Blocking:>OD6

1064nm Narrow bandpass filter
Dia10/25.4+0.0/-0.1mm
Flatness:1.5-2.5 lambda@632.8nm
Surface Quality:60-40
Center Wavelength:1064+/-2nm
T>80%
FWHM:5 +/-2nm
Blocking:>OD4

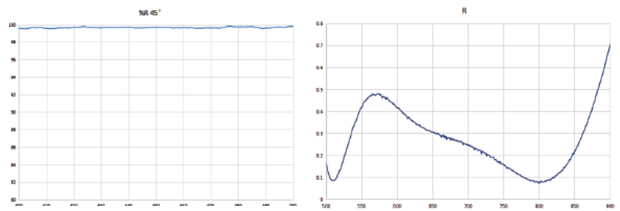
Optical Mirror

Laser mirror is one of the most important optical components in laser system.in some area,Metal coating can meet the common requirement,But if the required reflectivity is higher than the value of the metal coating,we can add additional dielectric film on the metal film to improve their reflectivity, we can call it metal enhanced reflective film, in order to get a higher laser damage threshold, The dielectric enhanced metal reflective film is difficult to meet its requirements, because the absorption of the metal film is very large, it is easy to be damaged by strong laser, which requires the plating of a high reflection film of the whole medium, because the medium high reflection film has a large reflectivity and the smallest absorption rate, so it is widely used in the laser field.

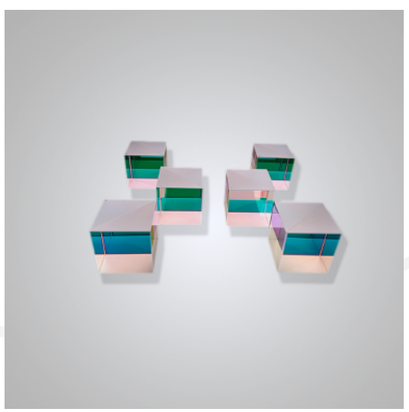
Ruike Optics offer Mirrors with low scattering, low absorption and high laser damage threshold.

Specifications:

Material:JGS1 Corning 7980
Size:2-200mm
CA:>90%
Parallelism<3 arcsec
Surface Quality:10-5
Flatness:1/10 lambda
Ravg>99.9%
laser-damaged threshold:15J/cm2@20NS



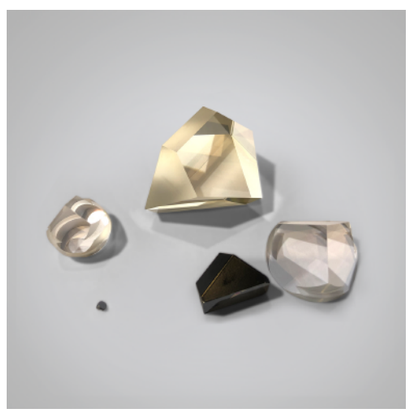
Optical Prism



Beam Splitter Cube

A standard beam splitting prism is constructed by gluing two right Angle prisms together to provide a variety of reflection/transmission rates. An interference film layer is used on the hypotenuse surface of one prism to provide a specified reflection/transmittance. The absorption loss of the film layer has reached low.

Size	5*5*5mm 10*10*10mm 20*20*20 50.8*50.8*50.8mm
Damage threshold	Damage threshold
Surface Quality	40/20 20/10 10/5
Clear Aperture	>90%
Flatness	<λ/4@632.8nm 1/10 lambda@632.8nm
Beam deviation	<3arcmin
Chamfer	0.3mmx45°
Coating	Hypotenuse coated beam splitter film,others AR
Ratio	±5%，T=(Ts+Tp)/2，R=(Rs+Rp)/2
Damage threshold	>500mJ/cm^2，20ns，20Hz，@1064nm



Corner Cobe Prism

Corner Cube Prism

Corner Cube Prism reflects all incoming light, this prism can Return to the original orientation.It can be used as a reflector (mirror) of a laser length measuring machine.Even if the tilt of the pyramid prism is slightly changed during the measurement, the tilt of the returned light will not change, and the light will return to the detector of the measuring instrument.

The angular cone prism reflects the input beam 180 degrees according to the total internal reflection function of the critical Angle, independent of the incident Angle. This means that any light incident on the aperture will appear along the same path as a highly reflective aperture

Parameters Of Corner Cube Prism

Material: BK7 Fused Silica, Corning 7980, Silicon, Germanium.
Size:3-120mm
Angle Error(Arc minute):5 arc sec-3arc min\
Surface Quality:10-5
Combined deflection Angle< 3 arc sec

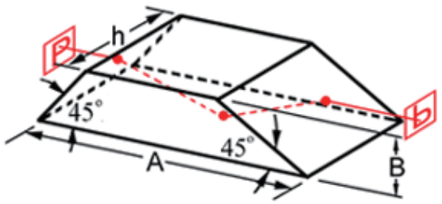
Stock

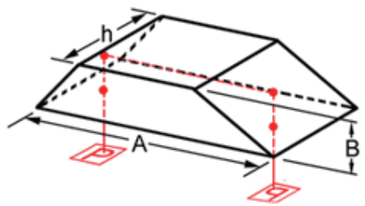
Size	Combined Deflection Angle	Material	Coating
10mm	3 arc sec	Corning 7980	None
25.4mm	3 arc sec	JGS1	None
30.8mm	5 arc sec	Corning 7980	None
50.8mm	10 arc sec	JGS1	None

Optical Prism

Dove Prism

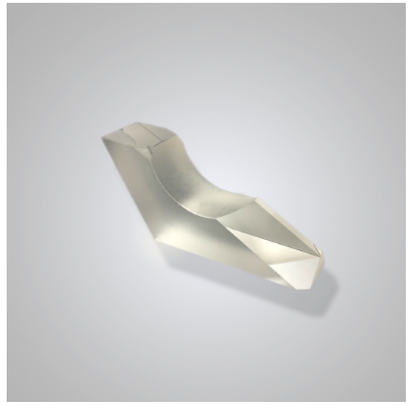
Dove prism has two applications. The main application is used as a rotator. It can rotate an image but without deviating the beam. And when the prism is rotated about the input parallel ray through some angle, the image rotates through twice that angle. It is very important that the application must be used with parallel or collimated beam and the large square reflective surface should be kept very clean. Another application is used as a retroreflector. For this application it perform as a right-angle prism.





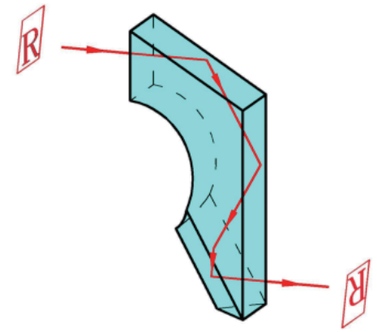
Specifications:

Material	Bk7 JGS1
Size	2-200mm
Tolerance	+/-0.05mm
90degree angle deviation tolerance	<3 arc sec
Flatness	1/10 lambda
Coating	AR Aluminum



Lehmann Roof Prism

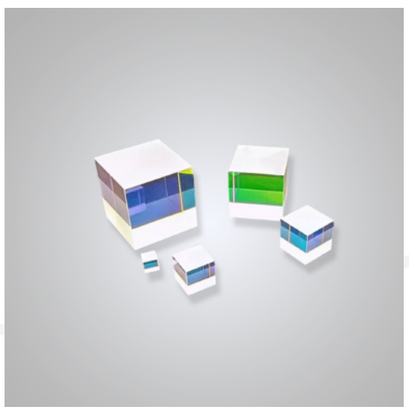
Lehmann Prism is a type of roof prism. The incident beam acts as a offset, and the image is reversed left and right and upside down (i.e. rotated 180 degrees).



Specifications:

Material	Optical glass
Size	10-50mm
Tolerance	+/-0.05mm
90degree angle deviation tolerance	<3 arc sec
Flatness	1/10 lambda
Coating	AR Aluminum

Optical Prism



NPBS

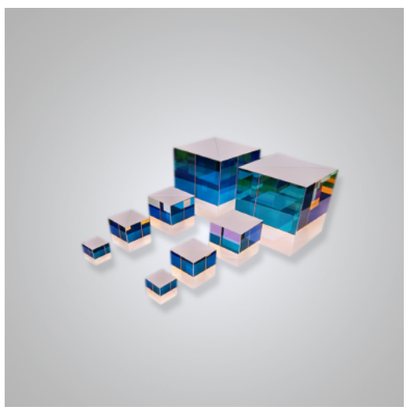
Non-polarizing Beam Splitter Cube is made of two right angle prisms, with the hypotenuse coated metallic dielectirc coating and all input and output face AR Coated. NPBS coating allow the transmission and reflection of P- and S- polarization stay in6% of each other. We can make customized size

Stock Size

Part No	Size mm	Wavelength	Material	Note
RNPBV-2	2*2*2mm	400-700nm 700-1100nm 1100-1600nm	H-K9L	|Tp-Ts|<3%|R
RNPBV-5	5*5*5	400-700nm 700-1100nm 1100-1600nm	H-K9L	p-Rs|<3%
RNPSV10	10*10*10	400-700nm 700-1100nm 1100-1600nm	H-K9L	1:9
RNPSV12-5	12.5*12.5*12.5	400-700nm 700-1100nm 1100-1600nm	H-K9L	3:7
RNPBV-20	20*20*20	400-700nm 700-1100nm 1100-1600nm	H-K9L	5:5
RNPBV-25-4	25.4*25.4*25.4	400-700nm 700-1100nm 1100-1600nm	H-K9L	7:3
RNPBV-50-8	50.8*50.8*50.8	400-700nm 700-1100nm 1100-1600nm	H-K9L	

Specifications

Material:H-K9L JGS1
Size:2*2*2mm 5*5*5mm 10*10*10mm 12.7*12.7*12.7mm 20*20*20mm 50.8*50.8*50.8mm
Surface Quality:10-5
Surface Flatness:1/10 lambda @632.8nm
Beam Deviation<1mins
Absorption<10%
Polarization:6%
Wavelength:355nm,767nmm1064nm 400-700nmm,700-1100nm.1100-1600nm
Laser damaged threshold:10J/cm^2@1064nm, 20ns, 20HZ
Coating: Typotenuse coated with pbs coating, all input and output coated with AR.



PBS

Polarizing Beam Splitter Cube

A polarizing prism can divide incident unpolarized light into two perpendicular lines. Where, P polarized light passes through completely, while S polarized light is reflected at an Angle of 45 degrees, and the exit direction is 90 degrees with P light. The polarization splitting prism is composed of a pair of high precision right Angle prisms and one of the prisms has a polarizing dielectric film coated on the hypotenuse.

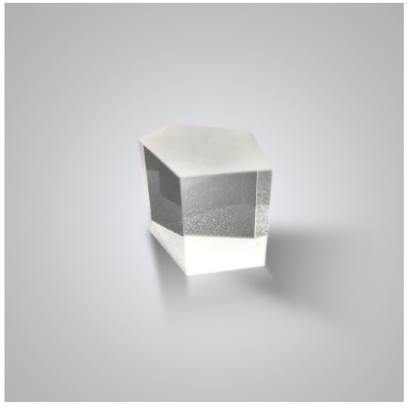
Stock Size

Part No	Size mm	Wavelength	Material	Note
RPSV5	5*5*5	400-700nm 700-1100nm 1100-1600nm	H-ZF3	
RPSV10	10*10*10	400-700nm 700-1100nm 1100-1600nm	H-ZF3	
RPSV12-5	12.5*12.5*12.5	400-700nm 700-1100nm 1100-1600nm	H-ZF3	Tp:Ts>1000:1
RPSV20	20*20*20	400-700nm 700-1100nm 1100-1600nm	H-ZF3	Tp>95%,Rs>99%
RPSV25-4	25.4*25.4*25.4	400-700nm 700-1100nm 1100-1600nm	H-ZF3	
RPSV50-8	50.8*50.8*50.8	400-700nm 700-1100nm 1100-1600nm	H-ZF3	
RPSN	20*20*20	650-1000nm	H-ZF3	
RPSHPJ	12.7*12.7*12.7	355nm,767nm,1064nm	JGS1	HPJ High Power
RPSHPJ	12.5*12.5*12.5	767nm	JGS1	Tp:Ts>2000:1
RPSHPJ	20*20*20	1064nm	JGS1	Optical Contact

Specifications

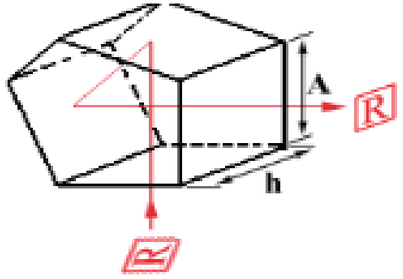
Material:H-ZF3 JGS1
Size:2*2*2mm 5*5*5mm 10*10*10mm 12.7*12.7*12.7mm 20*20*20mm 50.8*50.8*50.8mm
Surface Quality:10-5
Surface Flatness:1/10 lambda @632.8nm
Beam Deviation<1mins
Extinction Ratio:300:1 1000:1 10000:1
Transmission: Tp>97% Tp>96%; Ts<1%
Reflection: Rs>99%;Rp<5%
Wavelength:355nm,767nmm1064nm 400-700nmm,700-1100nm.1100-1600nm
Laser damaged threshold:10J/cm^2@1064nm, 20ns, 20HZ
Coating: Typotenuse coated with pbs coating, all input and output coated with AR

Optical Prism



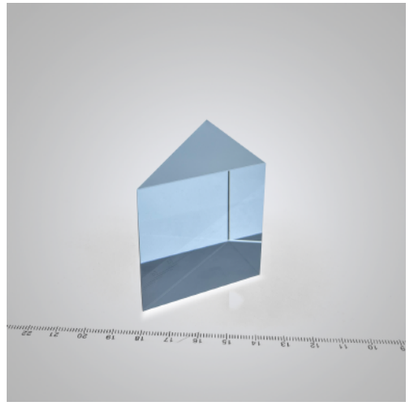
Penta Angle Prism

A penta angle prism is a pentagonal prism with four polished faces, two surfaces are reflective and the other two are incident and exit surfaces. The reflector surface of the pentagonal prism is plated with reflective film and protected by black paint. The penta angle prism can turn the light 90° but has neither image plane rotation nor mirror reflection, and the 90 ° turn will not change because of the different position of the prism, so it is very conducive to assembly. Pentagonal prism is widely used in level and rangefinder, and can also be used in SLR cameras



Specifications:

Material	Bk7
Size	2.5*2.5-100*100mm
Tolerance	+/-0.05mm
90degree angle deviation tolerance	<3 arc sec
Flatness	1/10 lambda
Coating	AR Aluminum

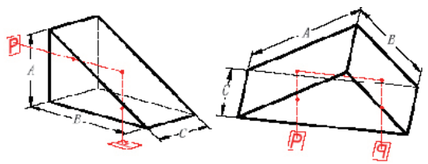


Right Angle Prism

Right Angle prisms are usually used to turn the light path or to deflect the image of an optical system by 90° . Depending on the orientation of the prism, the image can be left and right, and upside down and left and right. Right Angle prisms can also be used for image combination, beam deflection and other applications.It is also used as a reflex reflector that deflects light 180 degrees by total internal reflection.

Application:

Telescope diagonal
Distance meter
Microscope image bender, periscope
Drilling sights and making cube splitters, etc.



Stock Available

Part No	Size a=b=c (mm)	Material	Coating
RRP-A-0.35	0.35*0.35*0.35	H-K9L	Aluminum
RRP-A-2	2*2*2	H-K9L	Aluminum
RRP-A-5	5*5*5	H-K9L	Dielectric
RRP-B-10	10*10*10	JGS1	Dielectric
RRP-C-127	12.7*12.7*12.7	JGS1	Dielectric
RRP-C-20	20*20*20	Silicon	Aluminum
RRP-C-254	25.4*25.4*25.4	Silicon L	Aluminum
RRP-A-381	38.1*38.1*38.1	H-K9L	Aluminum
RRP-A-508	50.8*50.8*50.8	H-K9L	Aluminum

Ruike Optics offer 5 kinds of right angle prisms

Type1: Two Right Angle Prism coated with AR.

When the incidence Angle is greater than the critical Angle, the type 1 effectively achieves 90° internal total reflection of the inclined plane

Type 2:Hypotenuse surface with Aluminum+MgF2, Two right angle prisms coated with AR.

When the incidence Angle is less than the critical Angle, type 2 can effectively achieve 90° internal reflection of the inclined plane

Type 3:Hypotenuse surface with Aluminum+MgF2

The film uses the outer surface of the inclined plane as a mirror.

Type 4:Right Angle Surface Coated with Aluminum+MgF2

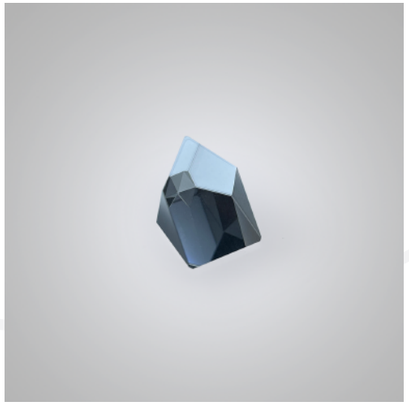
The two right angle surface work as mirrors.the coating can divide the incident beam into two directions.

Type 5:Hypotenuse surface with AR Coating.

Manufacture Specifications:

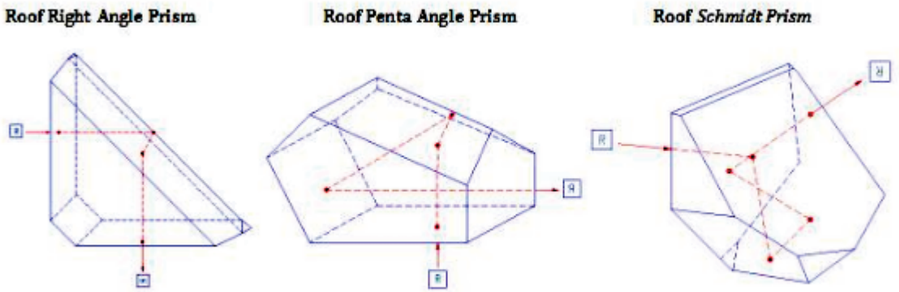
Material:BK7 JGS1 Silicon Germanium ZnS ZnS CaF2.
Size:0.3-200mm
Surface Quality:10-5
Flatness:1/10 lambda
Angle Tolerance: <3 arc sec
Coating: AR BBAR Dielectric Coating Aluminum Silver.

Optical Prism



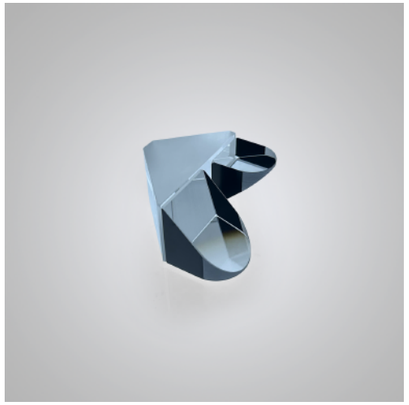
Roof Prism

Roof Prisms rotate and reverse images and deflect light at a 90 ° bend. Suitable for telescopes and any optical instrument that requires the image to be flipped from the objective, turned over to the right, and bent at 90° to maintain correct visual orientation.
Ridge prism is the key to the existence of the ridge surface, the so-called ridge surface is the light path inside will encounter a ridge shaped by two reflectors of the reflector, the two sides of the prism in the middle of the light path, so some ridge prism can see the middle of a dividing line, in fact, can also be understood as the beam divided into two halves and then combined.



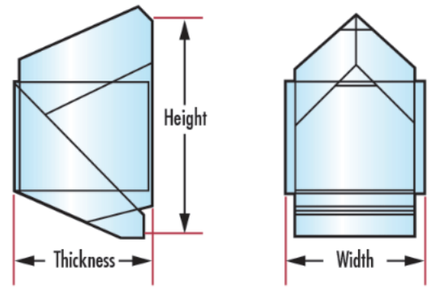
Specifications:

Material	Bk7
Size	2.5-100mm
Tolerance	+/-0.05mm
90degree angle deviation tolerance	<3 arc sec
Flatness	1/10 lambda
Coating	AR Aluminum



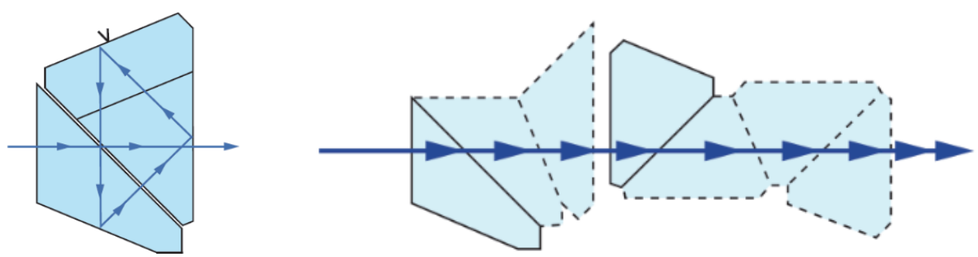
Schmidt-Pechan prism

Schmidt-Pechan Prism is an optical prism that rotates an image by 180 degrees, commonly used in binoculars as an "image erection system." The prisms are made by one half penta angle and one roof prisms.



Pechan Prism Ray Path

Pechan Prism Tunnel Diagram



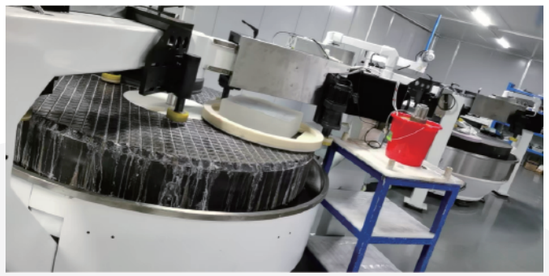
Optical Window

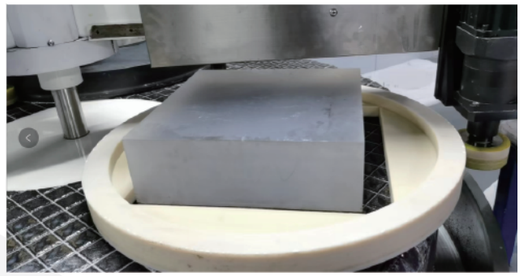
Big JGS1 BK7 Window

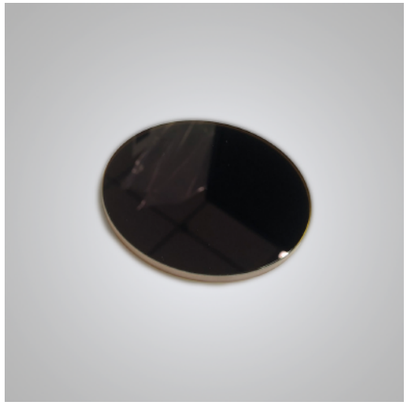
Ruike Optics manufacture big Optics include optical windows, we can make high precision 1/20 lambda within 60mm CA. The High Precision big optics are widely used in printing machinery, astronomical optics, high luminous flux system, large field of view system, remote imaging system, scientific research, security and defense.

Capability

Material:JGS1 BK7
Size:1-800mm
PV:1/10 lambda@600mm
Tolerance:+/-0.01mm
Surface Quality:10/5
Coating:AR BBAR High Power Laser 20000W







Ge Window

Ge germanium window has a high refractive index, the application range of 2-15 microns, visible light does not penetrate, uncoated products have low transmittance, generally need to be made AR Coating to improve the transmittance of germanium window.
Ge germanium window after anti-reflection coating, the common application of the spectral range of 3-5 microns, 8-14 microns.
The hardness of germanium window window is higher than magnesium fluoride, which can be used in the field of photoelectricity, infrared thermal imager, infrared laser system, infrared optical instrument, in semiconductor, aerospace measurement and control, nuclear physics detection, optical fiber communication, infrared optics, solar cells, chemical catalysts, biomedicine and other fields have a wide range of important applications.
Germanium substrate is more sensitive to temperature changes, and the transmission properties of germanium are extremely sensitive to temperature changes, the higher the temperature, the lower the transmittance, because it is not suitable for use in a high temperature environment of > 100 degrees, and the temperature is greater than 100 degrees or even higher temperature environment, which will make the germanium substrate low transmittance or light.
The wavelength of germanium window plate below 1.5μm cannot be transmitted, and can be used as an infrared long-wave pass filter.

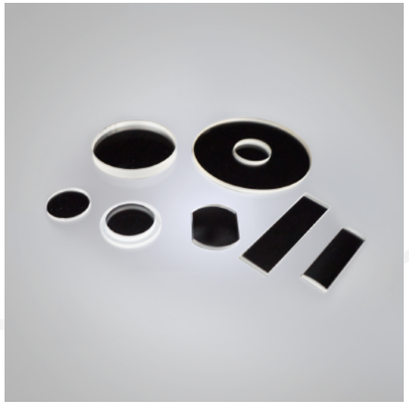
AR Transmission

AR 3~5μm,Tavg>97% (highest point)
AR 8~12μm,Tavg98.5% (highest point)
AR 4~12μm,Tavg 96% (highest point)
AR&DL8~12μm,Tavg 94% (highest point)

Specifications:

Material	Germanium
Size	1-300mm
Tolerance	+/-0.02mm
Parallelism	<3 arc sec
Flatness	1/10 lambda
Coating	AR BBAR DLC

Optical Window



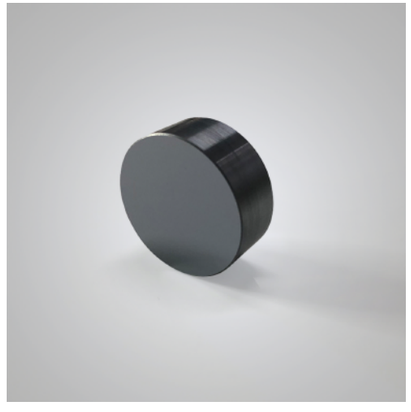
Sapphire Window

Sapphire Al2O3 can be very good for UV, VIS and NIR spectral bands of optical window materials because of its extreme toughness and strength. Sapphire can grow in a variety of ways. Verneuil and Czochralski methods are commonly used for standard grade sapphire materials. Higher quality sapphires, applied to electronic substrates, are grown by Kyropulos, which can obtain very high purity and have excellent UV transmission characteristics. The range of use in IR is limited to about 5um and encounters few difficulties at any optical level. It is in the ultraviolet range and must be observed carefully because the transmission from 140nm to 240nm is very sensitive to impurities and gap vacancies. Sapphire can grow in a variety of ways. Verneuil and Czochralski methods are commonly used for standard grade sapphire materials. Higher quality sapphires, applied to electronic substrates, are grown by Kyropulos, which can obtain very high purity and have excellent UV transmission characteristics. The range of use in IR is limited to about 5um and encounters few difficulties at any optical level. It is in the ultraviolet range and must be observed carefully because the transmission from 140nm to 240nm is very sensitive to impurities and gap vacancies.

Technical parameter

Transmission	0.17~5.5μm
Refractive index	No 1.75449; Ne 1.74663 (1.06μm) (1)
Reflection loss	14% at 1.06μm
Absorption coefficient	0.3×10 -3 cm -1 at 2.4μm (2)
Absorption peak:	13.5μm
dn / dT	13.4×10 -6 (0.546μm) (3)
dn /dμ= 0	1.5μm
density	3.97g/cm3
Melting point	2040℃
Thermal conductivity	27.21W m-1K-1 at 300K
Thermal expansion	5.6 (para) & 5.0 (perp) ×10-6 / K*
Hardness	Knoop 2000 with 2000g indenter

Specific heat capacity	763JKg-1K-1 (293K) (4)
Dielectric constant	11.5 (para) 9.4 (perp) at 1MHz
Young's modulus (E)	335GPa
Shear modulus (G)	148.1GPa
Bulk modulus (K)	240GPa
Elastic coefficient	C11 = 496 C12 = 164 C13 = 115 C33 = 498 C44 = 148
Apparent elastic limit	300 MPa (45,000 psi)
Poisson's ratio	0.25
Solubility	98×10-6g / 100g water
Molecular weight	101.96
(hex) , R3c	Trigonal (hex) , R3c



Silicon Window

In the 3-5um range, silicon is the most common material for making optical lenses and optical Windows in efficient infrared imaging systems. Silicon has a high refractive index (about 3.4 in the 3-5um band), minimal surface curvature and small color difference, and in low-power imaging systems, usually no trimming is required. Silicon Windows are mainly used in national defense weapons, thermal imagers, infrared thermometers, night vision, satellites and so on.

Specifications

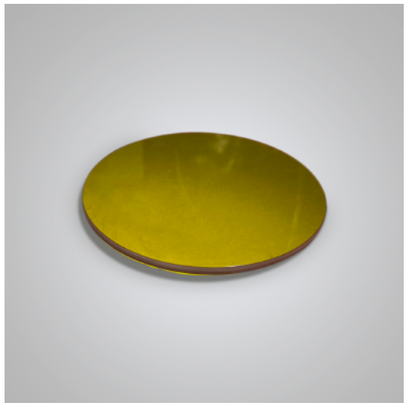
Material	Silicon
Size	1-300mm
Tolerance	+/-0.02mm
Parallelism	<3 arc sec
Flatness	1/10 lambda
Coating	AR BBAR HR

Silicon Material Certificate

Purity	>99.999%
Crystal Growth	CZ
Conduction Type	P Type or N type
Crystal Orientation	<100> or <111>
Resistivity	1-100 ohm.cm
Lattice Constant	5.42×10 -10 m
Dislocation Density	None
CLTE	(2 ~ 9)×10-6 K-1
transmittance@3-5μm	50%-52.5%
Density	2.33g/cm3
Hardness, Mohs	7
Dielectric Constant for 9.37 x 109Hz	13

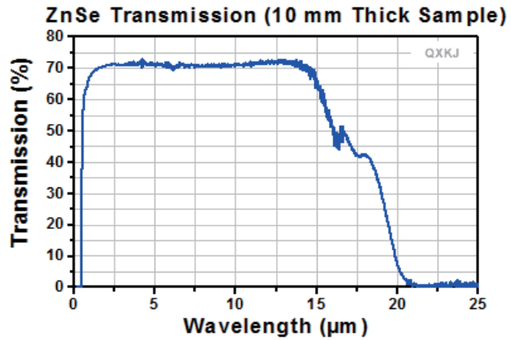
Melting point, ℃	1414
Thermal Conductivity, W/m·K at 313K	163
Thermal Expansion, 1/K at 293 K	2.6x10-6
Specific Heat Capacity, J(kg·℃)	712.8
Bandgap, eV	1.1
Knoop Hardness, kg/mm2	1100
Young's Modulus, Gpa	130.91
Shear Modulus, Gpa	79.92
Bulk Modulus, Gpa	101.97
Debye Temperature, K	640
Poisson's Ratio	0.28

Optical Window



ZnSe Window

Zinc Selenide (ZnSe) is a crystal that can penetrate light in the infra-red spectrum region from visible light to 20μm. ZnSe can be used for CO2 Laser (10.6um) window.
Ruike Optics manufactures ZnSe window, ZnSe lens and ZnSe prisms.



Crystallographic

Syngony	Cubic
Symmetry Class	43m
Lattice Constants	a = 5.668 Å

Optical

Refractive Index at ne	2.6645
Refractive Index at nF' – nC'	0.1841
Refractive Index at n10.6	2.4034
Refractive Index at n8.0 – n12.5	0.0285
Thermal Coefficient of Refractive Index at 3.39 microns for ±60 ℃	(6 ... 6.63) x10-5
Transmission Range, microns	0.55 – 18

Thermal

Thermal Linear Expansion, ℃-1 at 27 ℃	7.9 x 10-6
Thermal Conductivity, W/(m * ℃) at 20 ℃	14.1
Specific Heat Capacity, J/(kg * ℃)	0.367 x 103
Thermal Stability, ℃	57 ±7
Melting Point, ℃	1520 ±15

Mechanical

Density, g/cm3 at 20 ℃	5.26
Mohs Hardness	4
Vickers Microhardness, Pa	(101 ±3) x 107
Young Modulus (E), Pa	7.76 x 1010
Shear Modulus (G), Pa	2.96 x 1010
Poisson Ratio	0.311

Chemical

Molecular Weight	144.33
Solubility	
in water, gram/100cm3	insoluble
in acids	soluble

Ref. Index vs. Wavelength λ

Wavelength, Microns	Refractive Index
1.0	2.4894
2.0	2.4462
3.0	2.4376
4.0	2.4331
5.0	2.4296
6.0	2.4258
7.0	2.4219
8.0	2.4176
9.0	2.4123
10.0	2.4067
11.0	2.4006
12.0	1.3936
12.5	2.3891
15.0	2.3662

Internal Transmittanceτ i (λ) vs. Wavelength λ

Wavelength, Microns	Internal Transmittance
0.5	0.65
1.0	0.76
3.0	0.94
5.0	0.97
7.0	0.99
8.0	0.99
9.0	0.99
10.0	0.99
12.0	0.98
15.0	0.90
20.0	0.16