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BOCHU

General Optics

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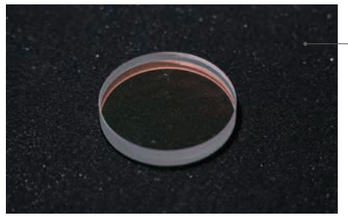
Customizable



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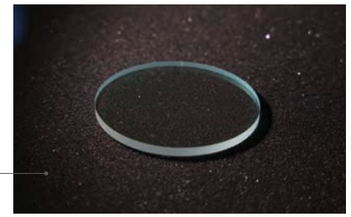

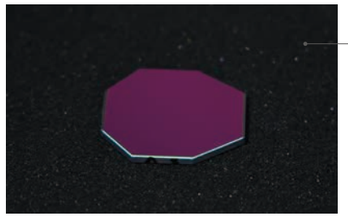

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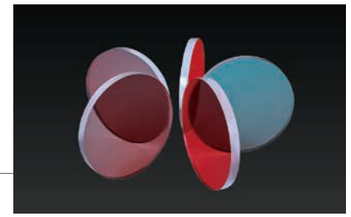

Aspherical Lenses

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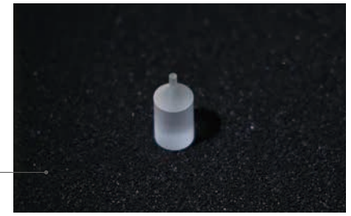


1 Spherical Lenses

Product Description

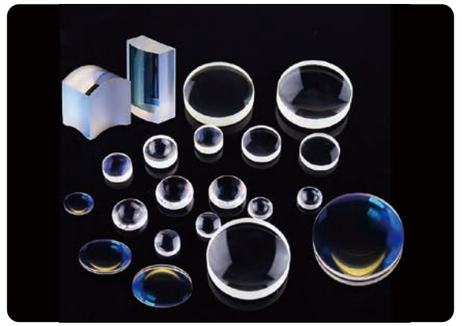
A spherical lens is a common type of optical lens that has a curved shape resembling a sphere, with either a convex or concave surface.Spherical lenses are typically used for focusing, dispersing, or refracting light and are fundamental components in many optical systems.

There are two basic types of spherical lenses: convex lenses and concave lenses.Convex lenses converge parallel rays of light to a focal point, making them suitable for focusing light.Concave lenses cause parallel rays of light to diverge, making them suitable for dispersing light.

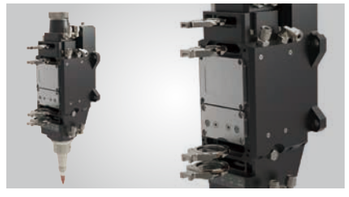
Spherical lenses find extensive applications in various fields, including cameras, telescopes, microscopes, laser systems, eyeglasses, and more. They are commonly used to adjust and control the propagation of light to meet specific optical requirements.

Main Parameters

Size:	10-100mm	**Centering Error:**	Better than 30”
PV:	Better than 0.5	**Surface Quality:**	Better than 10-5
Power Range:	Beyond 80kW	**Coat Type:**	1070nm Rabs<0.1% AOI=0° (Custom)



Applications



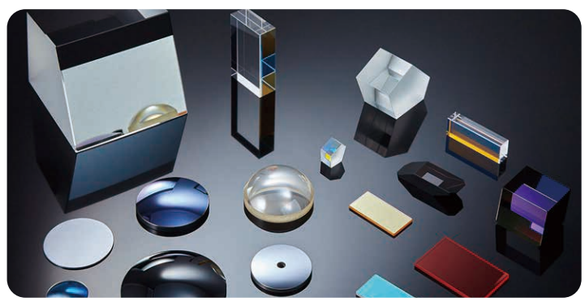
2 Protective Windows

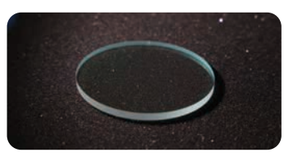
Product Description

A high-power laser window mirror is a critical optical component used for transmitting, controlling, and protecting laser beams.Its design and manufacturing take into consideration the specific requirements of high-power laser systems to ensure that the window mirror can withstand the intensity of high-power laser beams without being damaged.High-power laser window mirrors primarily allow the laser beam to pass through with high transmission rates while minimizing energy absorption through high reflectivity.The optical coatings on the mirror are typically carefully designed to minimize scattering and absorption, ensuring efficient laser transmission without excessive losses or heat generation.

This type of window mirror effectively protects other components of the laser system from dust, moisture, and other environmental factors.It also plays a crucial role in transmitting and controlling the laser beam, ensuring its quality and stability.In high-power laser applications, the high-power laser window mirror is designed to resist optical damage effectively, thus prolonging the system's lifespan.

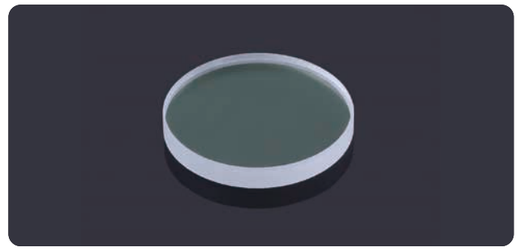
High-power laser window mirrors are widely used in fields such as laser cutting, laser welding, laser marking, laser medical applications, and scientific research.In these applications, they not only transmit the laser beam but also serve as a critical component in protecting the optical system and ensuring laser quality.





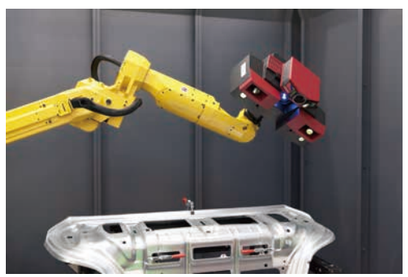
Main Parameters

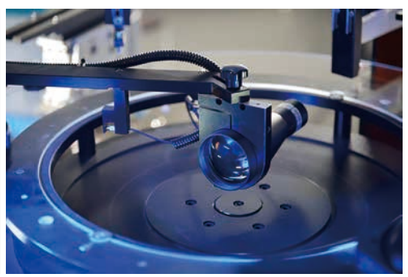
Size:	Custom	**Parallelism:**	Better than 5”
PV:	Better than 0.5	**Surface Quality:**	Better than 10-5
Power Range:	Beyond 80kW	**Coat Type:**	1070nm Rabs<0.1% AOI=0° (Custom)



Applications

Flat window mirrors have multiple uses in optical systems.They are often employed as windows in optical systems to prevent it from dust, moisture, or other environmental factors. They provide protection for the internal components of the optical system and support optical path adjustment and optical measurements.





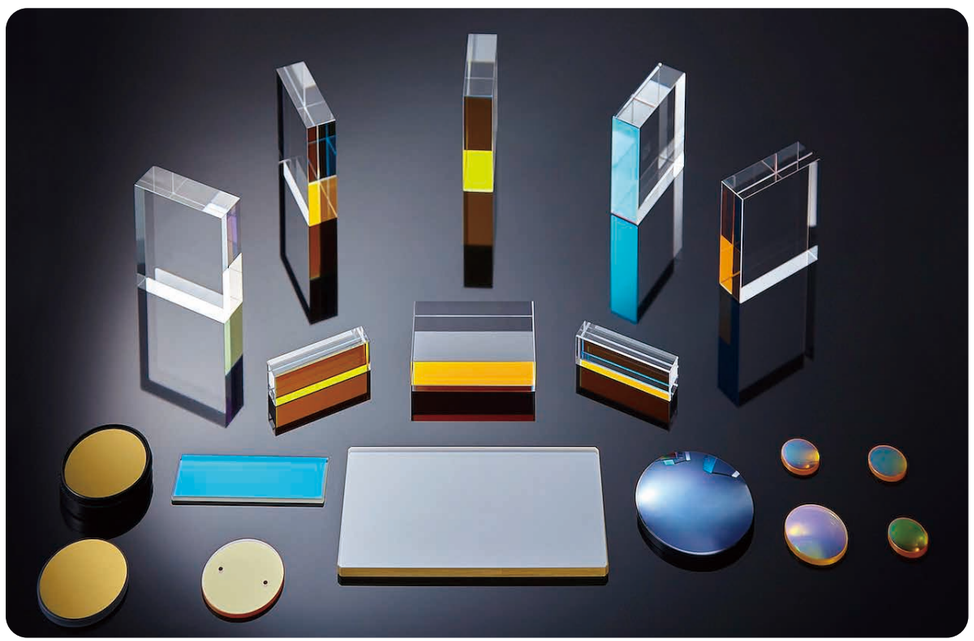
3 Mirrors

Product Description

Mirrors play a critical role in optical systems, serving various purposes such as adjusting the light path, focusing light beams, reflecting lasers, and more.There are different types of mirrors, including flat mirrors, spherical mirrors, and refractive-reflective mirrors.

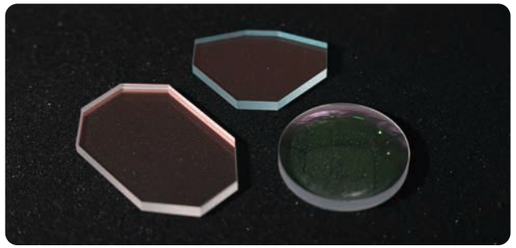
The working principle of a mirror is based on the law of reflection, which states that the angle of incidence is equal to the angle of reflection.When light rays illuminate the surface of a mirror, they reflect back into space, changing their propagation direction according to the law.

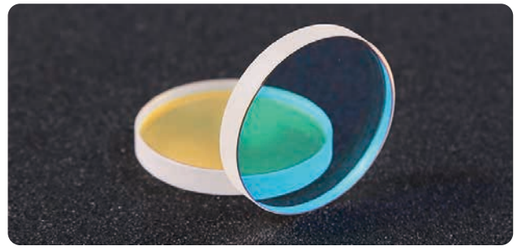
The shape and design of mirrors depend on specific applications.Clever design and the choice of reflective coatings can achieve specific optical performances, such as high reflectivity for specific wavelengths or broadband reflection for multiple wavelengths.



Main Parameters

Size:	Custom	**Parallelism:**	Better than 5”
PV:	Better than 0.5	**Surface Quality:**	Better than 40-20
Power Range:	Beyond 60kW	**Coat Type:**	1070nm R>99.5% AOI=45° (Custom)

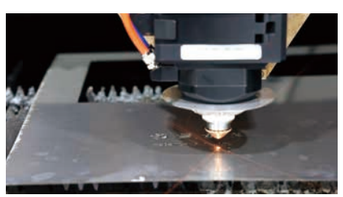




Applications

Mirrors have a wide range of applications in optical systems, including laser systems, telescopes, microscopes, photography, astronomical observations, and so forth.They are commonly used to alter light paths, focus light beams, refract lasers, providing flexibility and control in various optical applications.

Laser mirrors, in particular, find major applications in laser cutting, laser welding, laser marking, laser ranging, and other laser-related fields.They are extensively used for guiding and adjusting optical paths to achieve the desired laser power distribution and direction control.



Laser Cutting

Laser Welding

Scanner Processing

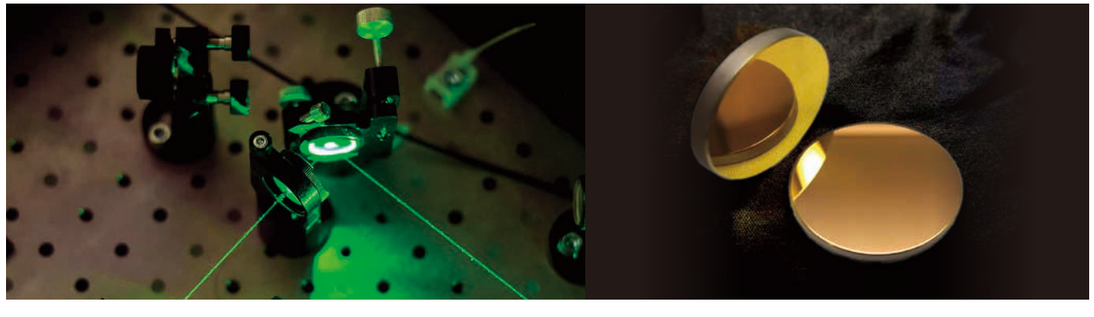
Mirror Application-1

Laser Mirrors

Laser mirrors are optical components used to reflect laser beams and are commonly employed in laser systems.These mirrors possess high reflectivity, allowing them to reflect the laser beam back into the laser cavity, maintaining optical resonance, and enabling laser amplification and normal operation.In a laser system, laser mirrors are placed at one end of the laser cavity with the purpose of reflecting the laser beam back into the cavity, forming optical resonance.The primary function of laser mirrors is to maintain optical resonance within the laser cavity, ensuring that the laser beam is amplified.

The main effect of laser mirrors is to ensure that the laser beam moves along the designed path while minimizing optical losses. This helps maintain the stability of the laser system, ensuring the collimation and directionality of the laser beam, thereby improving system performance.Laser mirrors come in various types, including flat mirrors, concave mirrors, convex mirrors, and transmissive-reflective mirrors.

Special Coatings：To enhance reflection efficiency, laser mirrors are typically coated with special optical coatings to match the wavelength of the laser. These coatings can be made of materials such as metals, silicon dioxide, and others to ensure high reflectivity and optical losses.



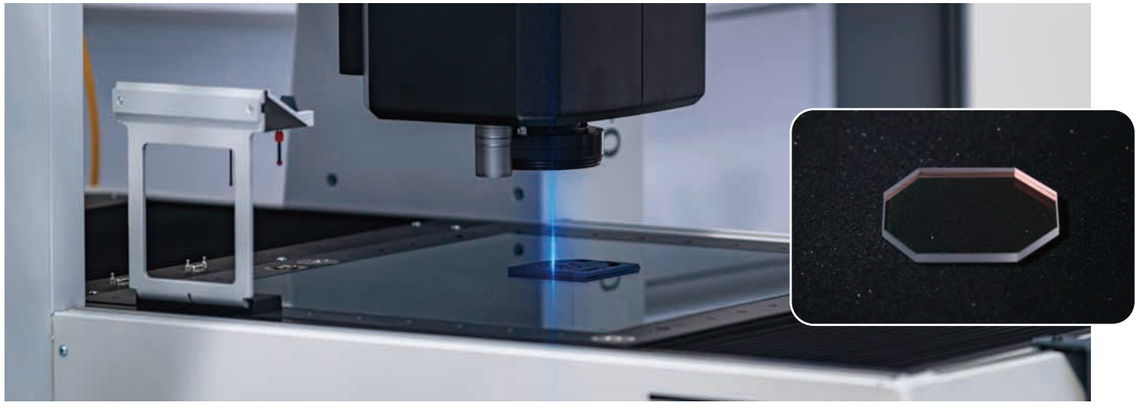
Mirror Application-2

Calvo Mirrors

Scanner Mirror, are optical components capable of rapid oscillatory or scanning motion. They are commonly used in laser scanning and optical scanning systems.The oscillation or scanner motion of these mirrors enables the change in direction of the laser beam, thereby achieving rapid orientation and focusing in space.

The primary effect of scanner mirror is to enable fast orientation and scanning of the laser beam.-By rapidly adjusting the direction of the laser beam, scanner mirror facilitate high-speed scanning, thereby improving the scanning speed and efficiency of the system.

The types of scanner mirror include two-axis mirrors, single-axis mirrors, and multi-axis mirrors, and the specific selection depends on the requirements of the application.Two-axis scanner mirrors enable scanning in both horizontal and vertical directions, while single-axis scanner mirrors are limited to oscillation in one direction.



Scanner mirrors find applications in various fields, including laser printing, laser cutting, fiber optics communication, biomedical imaging, and more.In laser scanning microscopy, scanner mirror are widely used to achieve fast and precise scanning for obtaining high-resolution images.

4 Dichroic Mirrors

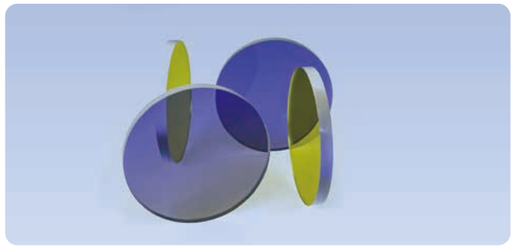
Product Description

A Dichroic Mirror is a specially designed optical mirror that can transmit or reflect light based on different wavelength regions.These mirrors are typically designed to have high transmission and reflection rates within specific wavelength ranges and can be used for light separation, combination, and selective transmission.The wavelength selectivity of a dichroic mirror can be customized by adjusting the design and stacking of the coatings.This allows them to be applied to lasers, fluorescent dyes, or other light sources with different wavelengths.

Dichroic mirrors come in different types, including long-pass and short-pass types.The long-pass type refers to transmitting light within longer wavelength ranges, while the short-pass type transmits light within shorter wavelength ranges. The choice of a specific type of dichroic mirror depends on the requirements of the application.

Main Parameters

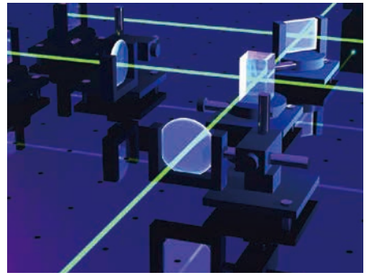
Size:	Custom	**Surface Quality:**	Better than 40-20
PV:	Better than 0.25	**Coat Types:**	632nmHR 808nm HT AOI=45° (Wavelength Optional)
Power Range:	Beyond 15J/cm2 10ns 10Hz		



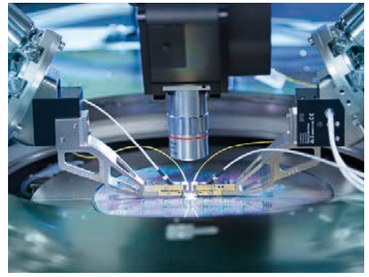
Applications

Dichroic mirrors have various applications in optical systems, with the most common ones found in fluorescence microscopy, laser systems, and optical communication.They are typically used to separate or combine light of different wavelengths to meet specific optical requirements.

Fluorescence Optical Microscopy



Laser Systems



Optical Communication

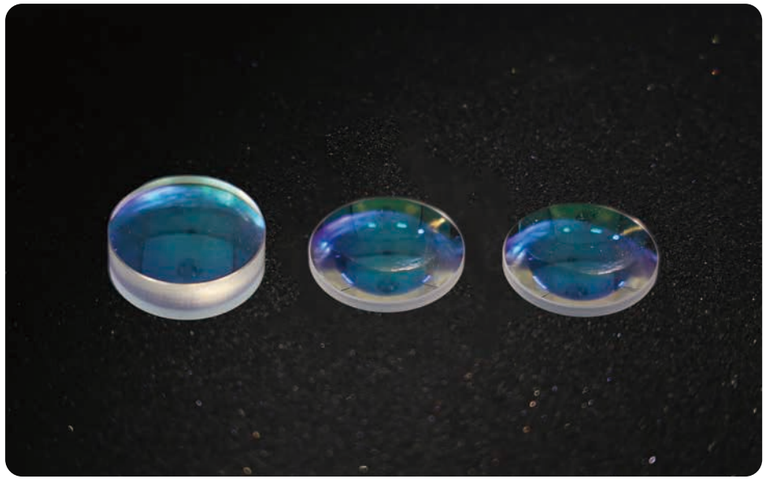
5 Aspherical Lenses

Product Description

Aspherical lenses are optical lenses whose curvature is not a simple sphere but is designed based on specific curves or surface shapes.This design allows for better correction of spherical aberration and improves the performance of optical systems.

The working principle of aspherical lenses involves a more complex curvature distribution, deviating from the simple spherical geometry.By carefully designing the aspherical curve, common spherical aberrations in optical systems can be effectively corrected, thereby enhancing the imaging quality of the lens.

The primary advantage of aspherical lenses lies in their ability to optimize aberration control, particularly spherical aberration. This allows them to achieve a wider field of view, higher resolution, and reduced optical distortion in certain applications.The design of aspherical lenses can meet the specific requirements of optical systems and enhance the overall performance of the system.



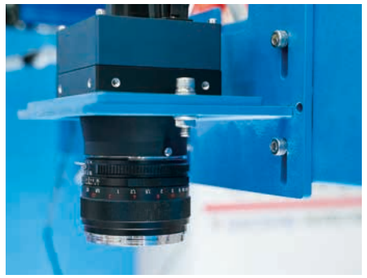
Main Parameters

Size:	20-100mm	**Centering Error:**	Better than 30”
PV:	Better than 0.2	**Surface Quality:**	Better than 40-20
Power Range:	Beyond 80kW	**Coat Type:**	1070nm Rabs<0.1% AOI=0° (Wavelength Optional)

Applications

Aspherical lenses are widely used in various fields, including optical microscopy, telescopes, camera lenses, laser systems, and the like.In these applications, aspherical lenses can improve imaging quality, reduce optical aberrations, and enhance the overall performance of the systems.

Optical Microscopy



Laser Systems

Camera Lenses

6

Fiber End Cap

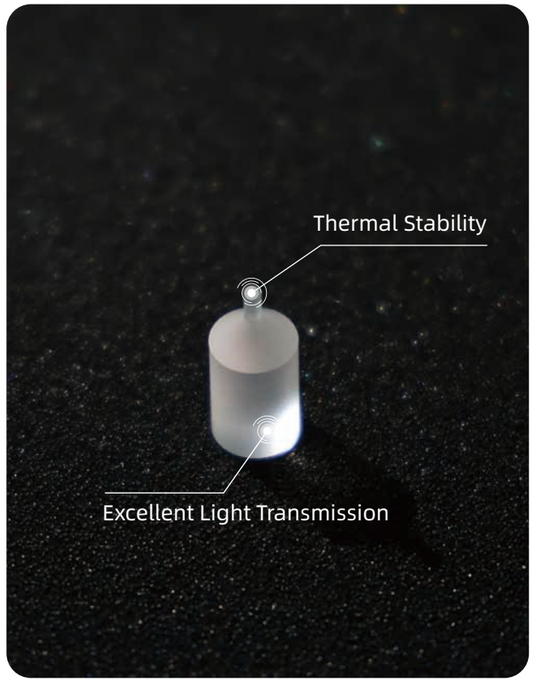
Product Description

Fiber endcaps are devices used for packaging and protecting optical components. They are made of quartz or quartz glass.These endcaps are designed to secure and protect the end faces of optical components, preventing contamination, damage, or gas intrusion from the external environment.Their main function is to safeguard the end faces of optical elements from the effects of the external environment.They can prevent dust, moisture, or other contaminants from entering the optical system, thereby affecting the performance and lifespan of the optical components.

Transparency: Quartz has excellent transparency, and quartz endcaps do not cause significant loss of light transmission in optical systems.

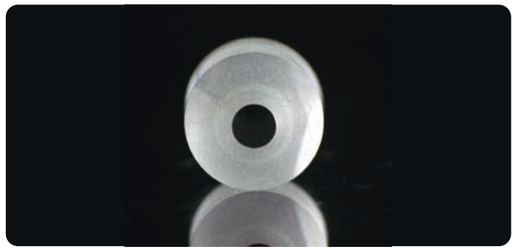
Corrosion Resistance: Fiber endcaps exhibit good chemical stability and corrosion resistance, allowing them to be used in various environmental conditions.

Customized Design: Fiber endcaps can be custom-designed according to specific application requirements, including shape, size, and surface treatments, to ensure performance and compatibility.



Main Parameters

Size:	Custom	**Surface Quality:**	Better than 5-2
PV:	Better than 0.5	**Coat Type:**	1070nm R<0.1% AOI=0° (Custom)
Power Range:	Beyond 80kW		



Our service mission is to provide customers with excellent optical solutions.We are committed to delivering high-quality and innovative optical lenses that meet their specific needs, while surpassing their expectations in terms of technical support, customized design, and after-sales service.Through our relentless pursuit of excellence, we aim to create exceptional optical experiences for our customers and become their trusted and preferred partners.