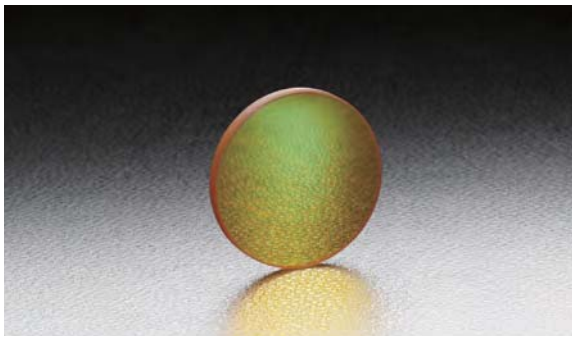
Single Lenses for CO_2 Lasers | SLZS

RoHS

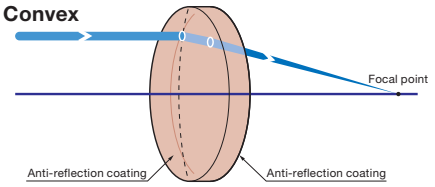
These spherical single lenses are made of zinc selenide. In contrast to other optical materials for infrared wavelengths such as Ge (germanium) or Si (silicon), ZnSe lenses transmit some visible light, facilitating optical axis adjustment (alignment) of infrared laser systems using lower cost He-Ne lasers. Lenses intended for use with CO_2 lasers have AR coatings.

- High powered lasers often emit laser light in the infrared region. Such systems require careful handling, since infrared laser light is invisible. Because of this laser light, preliminary alignment of optical parts in many cases are essential. While zinc selenide transmit some light in the visible spectrum, it allows easier alignment of other optical components.

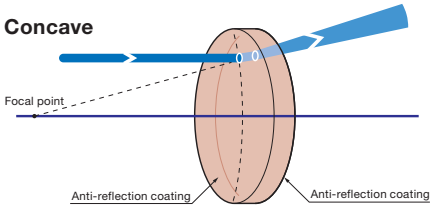


Schematic

Plano Convex

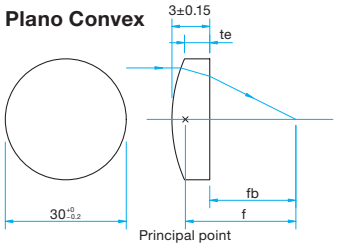


Plano Concave

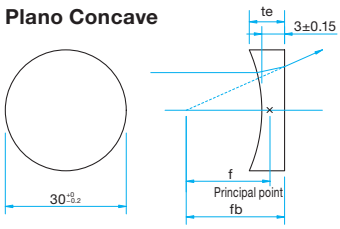


Outline Drawing (in mm)

Plano Convex



Plano Concave



Refractive index	
Wavelength Range [μm]	n
0.58	2.631
0.65	2.584
1.0	2.489
2.2	2.444
4.2	2.432
6.2	2.425
8.2	2.416
10.6	2.403
16.2	2.353
Density	5.27g/cm^3
Thermal expansion coefficient	7.1×10^{-6}/K
Thermal conductivity	18W·m^{-1}K^{-1}

Important: Treatment of ZnSe optics

ZnSe (Zinc selenide) is Poisonous and harmful substance classified as legal, depending on the specifications, the certificate of delivery may be required for acquisition of Poisonous and harmful substances. **In addition, ZnSe Optics disposal after use is prohibited in general.**
Lenses that are no longer needed, please return it to us.
However, we only take back products that we supplied. This policy noted is in Japan and other countries may differ in the treament of ZnSe (Zinc selenide), please contact your local sales office .

Specifications

Material	ZnSe crystal
Design wavelength	10.6μm
Coating	AR coating (both surfaces)
Transmittance	99% or more
Centration	<3′
Surface Quality (Scratch–Dig)	40–20

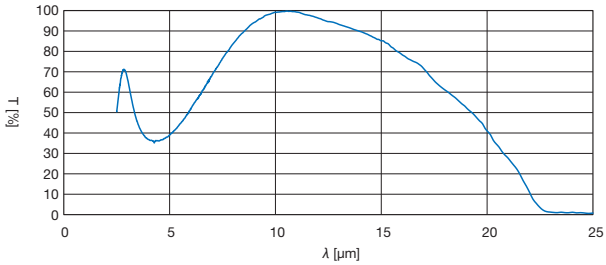
Guide

- For other focal length and diameter size not listed on the website or in our current catalog, please contact our Sales Division with your request.

Attention

- Hydrogen selenium is harmful when it comes in contact with strong acids! Do not immerse the lens in hydrochloric or sulphuric acid.
- When light is condensed on the surface of ZnSe, the high power laser beam may produce toxic gases due to the thermal decomposition. In addition, a large amount of gas and powder occurs when the ZnSe lens is damaged by the laser thermal runaway. In case of the ZnSe lens is damaged by any chance, DO NOT handle the lens with your bare hands. Collect the debris and be careful not to inhale the powder and gas generated.
- Please check the “wavelength characteristic of the focal length data” on our web-site.
- There is a possibility that the spherical aberration will increase and optical performance of the system will be degrated if use in reverse. The focused spot may enlarge and the image will appear un-focused.

Typical Transmittance Data T: Transmission



Plano Convex

Part Number	Focal length f [mm]	Edge thickness te [mm]	Center thickness fb [mm]	Radius of curvature r [mm]
SLZS-30-100PCO2	100	2.2	98.8	140.3
SLZS-30-150PCO2	150	2.5	148.8	210.5
SLZS-30-200PCO2	200	2.6	198.8	280.6

Plano Conceve

Part Number	Focal length f [mm]	Edge thickness te [mm]	Center thickness fb [mm]	Radius of curvature r [mm]
SLZS-30-50NCO2	–50	4.6	–51.2	–70.2