ZnSe Windows

Features / Characteristics

ZnSe windows are used as end elements or protective windows in CO_2 lasers. Like cutting lenses, they are made exclusively with high quality "laser grade" material, to withstand high power densities.

The standard windows are AR coated at 10.6 µm, but coatings at 9.35 µm or special wideband AR or dualband AR coatings are also available upon request.

Applications

End or protection window in CO_2 lasers that are used in welding, cutting, marking, etching and other industrial applications.

Specifications

Diameter tolerance	+0/-0.2 mm
Thickness tolerance	±0.25 mm
Wedge	<3 arc min.
Surface figure	typ. λ/20 at 10.6 µm (depends on diameter thickness ratio)
Surface quality	40-20
Clear aperture	>85% of diameter
Total component absorption	standard: <0.25% up to 9 mm thickness low absorption option: <0.15% up to 9 mm thickness (typ. <0.12%)
Total transmission	T>99.4%, coated AR/AR at 10.6 µm, depends on thickness
Reflection per side	R<0.25%, coated AR at 10.6 µm
Laser damage threshold of coated component	depends on the beam diameter, typ. 3000 W/mm (CW CO_2 Laser) (3 kW per mm of beam dia. $1/e^2$)

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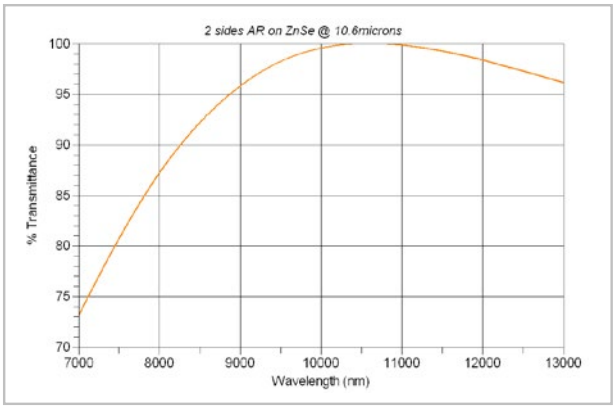
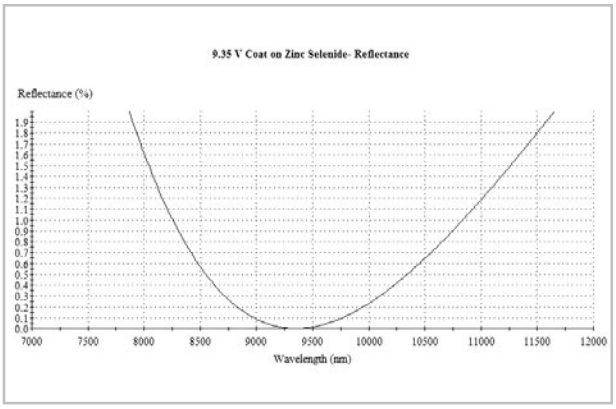
Simulations

Transmission over wavelength for both side AR/AR10.6 coated ZnSe window



Reflectance over wavelength for AR9.35 coating on ZnSe



Good to know

ZnSe windows can be fabricated in dimensions from 4.0 to 300 mm diameter and thicknesses from 1.0 mm up to 50 mm. Square and rectangular ZnSe windows can be fabricated to order.

Standard coating is for 10.6 µm or 9.35 µm, other coatings are also available, like for example

broadband BBAR/BBAR 8 – 12 µm or 3 – 5 µm or

wideband WBAR/WBAR 3 – 12 µm or 1 – 5 µm or

dual AR/AR 10.6 µm + 633 nm

In case windows must support a certain pressure, please advise which pressure part is used with.

Customer designs are available upon request.

Product Code

WNZ — **Diameter (inch x10)** **Thickness (inch x100)** — **Coating**

For example:

WNZ-1011-101 (window, ZnSe, dia 1 inch, 3.0 mm thick, AR coated for 10.6 µm)

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