

ZINC SELENIDE (ZnSe) COMPONENTS

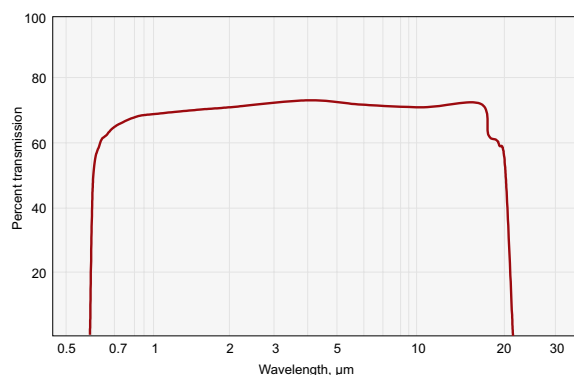
Features

- Low absorption in the red end of the visible spectrum
- Not hygroscopic
- Quite stable in the laboratory environment

Zinc selenide is the most popular material for infrared applications. Due to a very wide transmission range covering 0.6–22 μm chemical vapor deposition grown ZnSe as a high optical quality material is used to manufacture optical components (windows, mirrors, lenses) for high power IR lasers.

Because of a high refractive index, single and double layer antireflection coatings can be unusually effective.

ZnSe Brewster windows, mirrors, prisms, beamsplitters and beamselectors are available upon request.



External transmission of ZnSe window of 10 mm thickness

Physical properties

Crystal type	cubic	
Density, g/cm^3	5.27	
Melting point, $^{\circ}\text{C}$	1525	
Refractive index	@ 8 – 13 μm	$n = 2.417\text{--}2.385$
	@ 10.6 μm	$n = 2.403$
Transmission range, μm	0.6 – 21	
Bulk absorption coefficient, cm^{-1}	@ 10.6 μm	$0.6 - 1.0 \times 10^{-3}$
Coefficient of linear thermal expansion, $^{\circ}\text{C}^{-1}$	8.56×10^{-6}	

ZnSe WINDOWS

Specifications

Uncoated

Diameter, mm	Thickness, mm	Catalogue number	Price, EUR
12.7	2.0	560-6120	55
12.7	3.0	560-6121	57
25.4	2.0	560-6250	69
25.4	3.0	560-6251	73
38.1	3.0	560-6381	135
50.8	3.0	560-6501	270
50.8	5.0	560-6503	340

Material	ZnSe
Surface quality	40 – 20 scratch & dig (MIL-PRF-13830B)
Clear aperture	90% of the diameter
Diameter tolerance	+0.0 / -0.13 mm
Thickness tolerance	± 0.1 mm @ 10.6 μm
Surface flatness	$\lambda/40$ per inch @ 10.6 μm over clear aperture
Parallelism	3 arcmin
Coating	both surfaces AR coated @ 10.6 μm , $R \leq 0.5\%$ per surface

Coated AR/AR @ 10.6 μm , AOI=0 $^{\circ}$

Diameter, mm	Thickness, mm	Catalogue number	Price, EUR
12.7	2.0	560-6122	85
25.4	3.0	560-6253	130
38.1	3.0	560-6383	205
50.8	5.0	560-6505	410
76.2	6.4	560-6766	995

Please contact us for other size, shape, precision or coating requirements.

ZnSe PLANO-CONVEX LENSES

Specifications

Material	ZnSe
Surface quality	40 – 20 scratch & dig (MIL-PRF-13830B)
Focal length tolerance	$\pm 2\%$
Diameter tolerance	+0.0 / -0.13 mm
Thickness tolerance	± 0.1 mm
Coating	both surfaces AR coated @ 10.6 μm , $R \leq 0.5\%$ per surface

Diameter, mm	Focal length, mm	Catalogue number	Price, EUR
12.7	25.4	561-6122	125
19.1	38.1	561-6192	130
19.1	50.8	561-6193	130
25.4	50.8	561-6251	195
25.4	63.5	561-6252	195
25.4	76.2	561-6253	195
25.4	101.6	561-6254	195
25.4	127	561-6255	190

Diameter, mm	Focal length, mm	Catalogue number	Price, EUR
25.4	150	561-6256	190
25.4	200	561-6257	190
25.4	254	561-6258	190
38.1	63.5	561-6382	315
38.1	127	561-6385	308
38.1	190.5	561-6388	308
50.8	127	561-6502	580
76.2	254	561-6765	1390

Please contact us for other size, shape, precision or coating requirements.

ZnSe MENISCUS LENSES

Specifications

Material	ZnSe
Surface quality	40-20 scratch & dig (MIL-PRF-13830B)
Focal length tolerance	±2%
Diameter tolerance	+0.0 -0.13 mm
Thickness tolerance	±0.1 mm
Clear Aperture	90% of the diameter
Coating	both surfaces AR coated @ 10.6 μm, R≤0.5% per surface

Diameter, mm	Focal length, mm	Catalogue number	Price, EUR
12.7	38.1	565-6122	215
25.4	25.4	565-6251	224
25.4	38.1	565-6252	224
25.4	50	565-6253	217
25.4	63.5	565-6255	217
25.4	75	565-6256	217
25.4	100	565-6257	217
25.4	127	565-6258	217
38.1	63.5	565-6382	345
38.1	127	565-6385	345
38.1	254	565-6388	345
50.8	127	565-6502	612
76.2	254	565-6765	1450

Please contact us for other size, shape, precision or coatings requirements.

Housing accessories

Variable Lens Holder 830-0040

Find more at EksmaOptics.com



SILICON (Si) COMPONENTS

Coated silicon substrates are most common used as mirrors for CO₂ lasers. Its advantages are good durability, thermal stability and relatively low cost.

The total reflectors are used as rear reflectors and fold mirrors and externally as beam benders in beam delivery systems.

Specifications

Material	Si
Density, g/cm ³	2.33
Operation wavelength	10.6 μm
Surface quality	40 – 20 scratch & dig (MIL-PRF-13830B)
Surface flatness	λ/4 @ 633 nm
Clear aperture	>80% of diameter
Diameter tolerance	+0.0 / -0.2 mm
Thickness tolerance	±0.25 mm

SILICON (Si) MIRRORS

Specifications

Coating	protected gold
Reflectivity for unpolarised radiation	> 99%

Diameter, mm	Thickness, mm	Catalogue number	Price, EUR
25.4	3	575-6250	59
38.1	4	575-6380	94
50.8	5	575-6500	159

SILICON (Si) WINDOWS

Specifications

Coating	uncoated
Parallelism	3 arcmin

Diameter, mm	Thickness, mm	Catalogue number	Price, EUR
25.4	3	575-6250U	95
50.8	3	575-6500U	160