

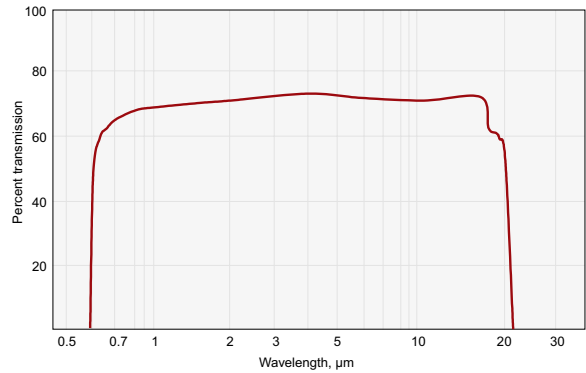
## ZINC SELENIDE (ZnSe) COMPONENTS

- 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 <sup>3</sup>	5.27	
Melting point, °C	1525	
Refractive index	@ 8–13 μm	n = 2.417–2.385
	@ 10.6 μm	n = 2.403
Transmission range, μm	0.6 – 21	
Bulk absorption coefficient, cm <sup>-1</sup>	@ 10.6 μm	0.6–1.0×10 <sup>-3</sup>
Coefficient of linear thermal expansion, °C <sup>-1</sup>	8.56×10 <sup>-6</sup>	

### ZnSe Windows

#### SPECIFICATIONS

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
Surface flatness	λ/40 per inch @ 10.6 μm over clear aperture
Parallelism	3 arcmin
Coating	both surfaces AR coated @ 10.6 μm, R≤0.5% per surface

#### Uncoated

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

#### Coated AR/AR@10.6 μm, AOI=0°

Catalogue number	Diameter, mm	Thickness, mm	Price, EUR
560-6122	12.7	2.0	85
560-6253	25.4	3.0	130
560-6383	38.1	3.0	205
560-6505	50.8	5.0	410
560-6766	76.2	6.4	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	±2%
Diameter tolerance	+0.0 -0.13 mm
Thickness tolerance	±0.1 mm
Coating	both surfaces AR coated @ 10.6 μm, R≤0.5% per surface

Catalogue number	Diameter, mm	Focal length, mm	Price, EUR
561-6122	12.7	25.4	185
561-6192	19.1	38.1	185
561-6251	25.4	50	195
561-6252	25.4	63.5	195
561-6253	25.4	75	195
561-6254	25.4	100	195
561-6255	25.4	127	190
561-6256	25.4	150	190

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

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

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

### HOUSING ACCESSORIES

Variable  
Lens Holder  
830-0040  
See page 8.49



## SILICON (Si) COMPONENTS

Coated silicon substrates are most common used as mirrors for CO<sub>2</sub> 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 <sup>3</sup>	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%

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

## Silicon (Si) Windows

### SPECIFICATIONS

Coating	uncoated
Parallelism	3 arcmin

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