

Optical Products

For the

InfraRed



**OFF-THE-SHELF & CUSTOM OPTICAL
FABRICATION & DESIGN SERVICE**



INFRARED OPTICAL PRODUCTS

**19 EQUESTRIAN COURT,
HUNTINGTON, NY 11743**

Telephone : 631-805-9055

E-mail : iroptical@aol.com

Website : infraredopticalproducts.com

CATALOG NO. 2001

✓ **GENERAL INFORMATION**

With the start of a new decade, we have expanded our line of products. That's why we have rightly renamed ourselves as **INFRARED OPTICAL PRODUCTS** to cover this broad range of products. Now you can look to us for off-the-shelf Infrared Transmitting Lenses - spherical & cylindrical; Lens Assemblies for 3-5 microns & 8-12 microns use; Partial Reflectors - plano & concave; Mirrors, Windows, Beam Expanders; Filters - NDF & interference.

This catalog has the most comprehensive listing of Infrared optical products using materials like: Zinc Selenide, Germanium, Silicon, Zinc Sulphide, Cleartran, Barium Fluoride. With over 25 years of experience in this line, you can be confident in dealing with us for the right products and on-time deliveries. Our in-house engineering staff, experienced craftsmen & computer facilities will help you in selecting the best material & design at the right prices.

✓ **WARRANTY**

Optical components designed and manufactured by **INFRARED OPTICAL PRODUCTS**, are unconditionally warranted to meet or exceed the stated specifications and be free from defects in materials and workmanship. We stand by our products all the way!

✓ **ORDERING INFORMATION**

✓ **PRICES :**

All prices are listed in U.S. Dollars and payable in US funds. Prices are F.O.B. Farmingdale, NY, current at the time of publication and subject to change without notice.

✓ **SHIPPING :**

Unless specific shipping instructions are given with an order, shipment normally will be made by UPS, Air Freight, or Air Parcel Post.

✓ **TERMS :**

Terms of payment are net 30 days, on open account with established credit.]

TO ORDER :

INFRARED OPTICAL PRODUCTS

19 EQUESTRIAN COURT

HUNTINGTON, NY 11743

Telephone : 631-805-9055

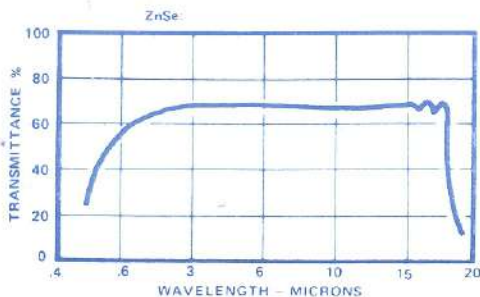
E-mail : iroptical@aol.com

Website : infraredopticalproducts.com

USEFUL MATERIAL INFORMATION

Zinc Selenide:

CVD produced ZnSe transmits very well from .6 microns in the visible to 15 microns in the infrared. Due to its low absorptivity at several laser wavelengths ZnSe is excellent in many laser systems for lenses, windows, output couplers and Beam splitters. Because of its broad transmission range and specifically its low absorption and scatter in the 8-14 micron region, ZnSe is a standard material for use in FLIR and other infrared instrument or imaging systems. ZnSe is non-hygroscopic, chemically stable unless treated with strong acids, and safe to use in industrial and field applications as well as in laboratory environments.

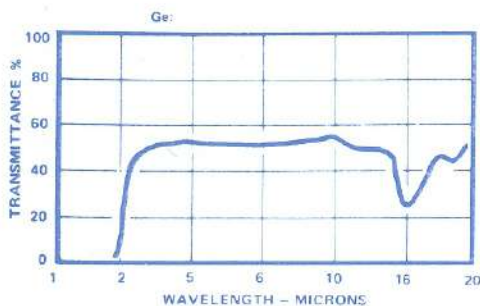


ZINC SELENIDE

CVD Processed
Absorption Coefficient: $< .005 \text{ cm}^{-1}$ @ 10.6μ
Useful Transmission Range: $.5 - 18 \mu$
Reflection Losses: 30% for 2 Surfaces @ 10.6μ
Refractive Index: @ $10.6 \mu = 2.400$
Rupture Modulus: = 8500 psi

Germanium:

Ge is a versatile IR material used commonly in imaging systems and instruments in 2-14 micron region for lenses, windows and output couplers for low power CW as well as pulsed TEA CO_2 lasers. Ge is limited to thruput power range of 50-100 watts before the on-set of significant thermal lensing or thermal runaway. Ge is non hygroscopic and has good thermal conductivity, excellent surface hardness and good strength.

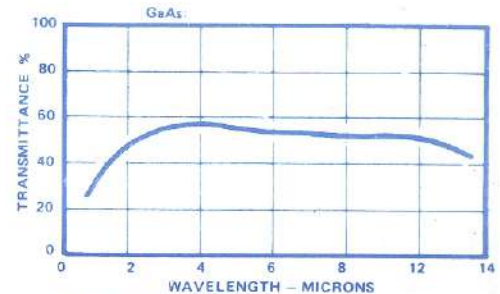


GERMANIUM

Absorption Coefficient: $< .03 \text{ cm}^{-1}$ @ 10.6μ
Useful Transmission Range: $2 - 14 \mu$
Reflection Losses: 53% for 2 Surfaces @ 10μ
Refractive Index: @ $10.6 \mu = 4.0029$
Rupture Modulus: = 10,500 psi

Gallium Arsenide:

GaAs provides an alternative to ZnSe in medium and high power CW CO_2 laser systems for lenses and beam splitters. It is particularly useful in applications where toughness and durability are important. Its hardness and strength make it a good choice where dust or abrasive particles from a workpiece tend to build up on, or bombard an optical surface. Often in cases where frequent cleaning by wiping is required, use of GaAs will extend optic lifetime. The material is non hygroscopic, safe to use in labs and field applications and it is chemically stable except when contacted with strong acids.

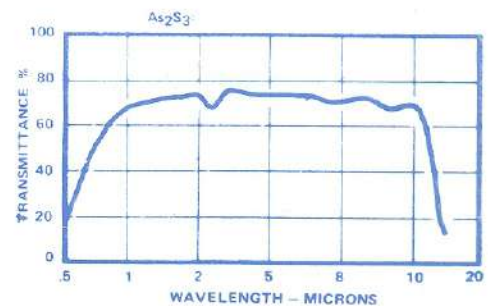


GALLIUM ARSENIDE

Absorption Coefficient: $< .02 \text{ cm}^{-1}$ @ 10.6μ
Useful Transmission Range: $1 - 11 \mu$
Reflection Losses: 45% for 2 Surfaces @ 12μ
Refractive Index: @ $8 \mu = 3.240$
Rupture Modulus: = 20,000 psi

ARSENIC TRISULFIDE (As_2S_3):

Arsenic Trisulfide glass is an inexpensive Infrared material, which is somewhat transparent in the visible and goes out to 9 microns. It is used to make lenses and windows for IR thermometer and other instruments.



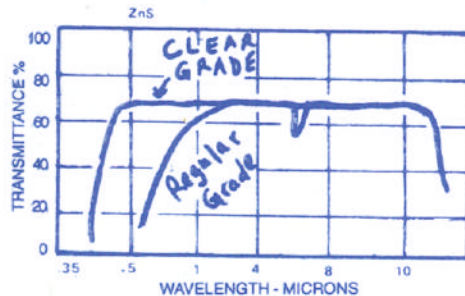
ARSENIC TRISULFIDE

Useful Transmission Range: $0.8 - 10 \mu$
Reflection Losses: 28.5% for 2 Surfaces @ 10μ
Refractive Index: @ $6 \mu = 2.403$
Rupture Modulus: = 2400 psi

ZINC SULFIDE:

CVD produced ZnS comes in 2 grades. The regular grade is useful for FLIR applications and has good transmission in 1-12 micron range, with reasonable hardness and good strength.

The other grade water-clear ZnS called Cleartran (trademark of CVD, Inc.) transmits not only in the infrared but also in the visible in the .4 to 12 micron range.



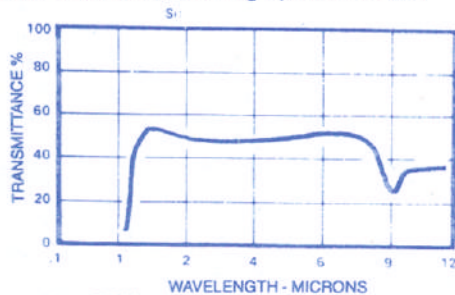
ZINC SULFIDE

Useful Transmission Range:	4.12 μ
Reflection Losses:	30%
Refractive Index:	2.2 at 10.6
Rupture Modulus:	15,000 psi

SILICON:

Si is a very useful IR-material in 3-5 micron atmospheric window where many Infrared Avionics systems are operational. Optical grade polycrystalline Si is used to make lenses, domes and windows, etc.

Because of its high thermal conductivity it is also very good mirror substrate for high power lasers.

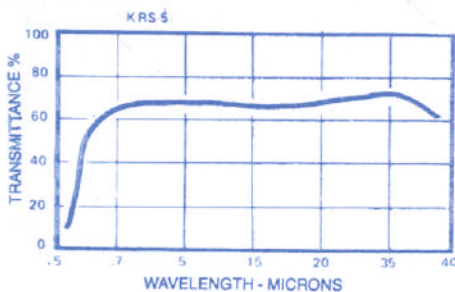


SILICON

Absorption Coefficient:	.010cm-1 @ 5.0 μ
Useful Transmission Range:	12.8 μ
Reflection Losses:	46% for 2 Surfaces @ 10 μ
Refractive Index:	@ 8 μ = 3.4184
Rupture Modulus:	19,000 psi

KRS-5:

KRS-5 is used for lenses, windows and prisms for applications from .6 micron to 50 microns. It is relatively insoluble in water and may be used in cells in contact with aqueous solutions.

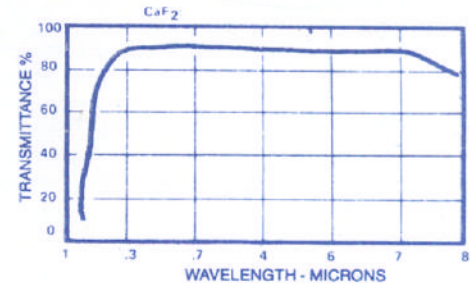


THALLIUM BROMOIODIDE

Useful Transmission Range:	0.6-40 μ
Reflection Losses:	28.4% for 2 Surfaces @ 10 μ
Refractive Index:	@ 10 μ = 2.371
Rupture Modulus:	3800 psi

CALCIUM FLUORIDE:

CaF₂ is used for optical windows, lenses and prisms in .15-9 micron range. Because of its low absorption at wavelength shorter than 6 microns, CaF₂ is particularly popular for high power laser optics in that wavelength range. Due to its low refractive index it can be used without anti-reflection coating.

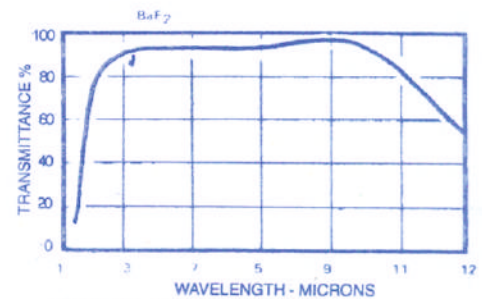


CALCIUM FLUORIDE

Useful Transmission Range:	0.13-8.0 μ
Reflection Losses:	5.6% for 2 surfaces @ 4.0 μ
Refractive Index:	@ 5 μ = 1.400
Rupture Modulus:	5300 psi

Barium Fluoride:

BaF₂ is used for optical windows, lenses and prisms in .2-11 micron range. The material is very hard but is very sensitive to thermal shock.

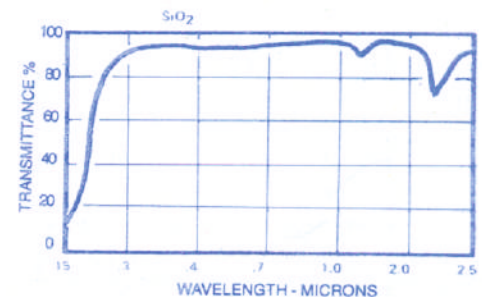


BARIUM FLUORIDE

Useful Transmission Range:	0.15-11.5 μ
Reflection Losses:	6% for 2 surfaces @ 4.0 μ
Refractive Index:	@ 3 μ = 1.461
Rupture Modulus:	3900 psi

QUARTZ, FUSED SILICA (SiO₂)

Fused Silica is used for windows, lenses in the .16-2.5 micron range. It is available in IR & UV grade, depending on your requirements. It is good for high temperature and strength applications.



FUSED SILICA (Quartz)

Useful Transmission Range:	0.2-2.5 μ
Reflection Losses:	6.3% for 2 surfaces @ 2 μ
Refractive Index:	@ 5890 μ = 1.4584
Rupture Modulus:	7110 psi

ZINC SELENIDE (ZnSe) Meniscus Lens

Design Wavelength: 10.6 microns
 Effective Focal Length: + - 2%
 Clear Aperture: 90% diameter
 Edge thickness Variation: .025 mm
 Diameter Tolerance: + 0, - 0.25 mm
 Bevel: .25 mm @ 45 degree
 Surface Irregularity: 1/40 Lambda @ 10.6 microns
 Surface Quality: 20-10
 Coating: R ≤ 0.5% Per surface

Diameter (mm)	F#	Effective Focal Length (mm)	Back Focal Length (mm)	Part Number	Prices	
					Uncoated	Coated
12.70	1	12.70	11.18	121106-ZS	\$300	\$375
12.70	2	25.40	24.38	122106-ZS	275	350
12.70	3	38.10	37.59	123106-ZS	275	350
12.70	4	50.80	49.78	124106-ZS	275	350
12.70	5	63.50	62.65	125106-ZS	275	350
12.70	6	76.20	72.30	126106-ZS	275	350
12.70	8	101.60	100.75	128106-ZS	275	350
12.70	10	127.00	126.15	1210106-ZS	275	350
19.05	1	19.05	17.31	191106-ZS	\$350	\$425
19.05	2	38.10	36.82	192106-ZS	300	375
19.05	3	57.15	55.87	193106-ZS	300	375
19.05	4	76.20	74.92	194106-ZS	300	375
19.05	5	95.25	94.31	195106-ZS	300	375
19.05	6	114.30	113.36	196106-ZS	300	375
19.05	8	152.40	151.46	198106-ZS	300	375
19.05	10	190.50	189.56	1910106-ZS	300	375
25.40	1	25.40	23.37	251106-ZS	\$375	\$450
25.40	1.5	38.10	36.42	251.5106-ZS	350	400
25.40	2	50.80	48.77	252106-ZS	325	375
25.40	3	76.20	75.18	253106-ZS	300	375
25.40	4	101.60	99.87	254106-ZS	300	375
25.40	5	127.00	125.98	255106-ZS	300	375
25.40	6	152.40	151.38	256106-ZS	300	375
25.40	8	203.20	202.18	258106-ZS	300	375
25.40	10	254.00	252.98	2510106-ZS	300	375
38.10	1	38.10	34.74	381106-ZS	\$525	\$615
38.10	2	76.20	74.08	382106-ZS	410	500
38.10	3	114.30	112.60	383106-ZS	395	485
38.10	4	152.40	150.71	384106-ZS	395	485
38.10	5	190.50	188.82	385106-ZS	395	485
38.10	6	228.60	227.26	386106-ZS	395	485
38.10	8	304.80	303.50	388106-ZS	395	485
38.10	10	381.00	379.74	3810106-ZS	395	485
50.80	1	50.80	46.20	501106-ZS	\$1140	\$1300
50.80	2	101.60	99.06	502106-ZS	1000	1100
50.80	3	152.40	150.30	503106-ZS	900	1000
50.80	4	203.20	201.52	504106-ZS	900	1000
50.80	5	254.00	252.33	505106-ZS	900	1000
50.80	6	304.80	303.12	506106-ZS	900	1000
50.80	8	406.40	404.68	508106-ZS	900	1000
50.80	10	508.00	506.32	5010106-ZS	900	1000

GERMANIUM (Ge) MENISCUS LENS

Design Wavelength: 10.6 microns
 Effective Focal Length: + - 2%
 Clear Aperture: 90% diameter
 Edge thickness Variation: .025 mm
 Diameter Tolerance: + 0, - .1 mm
 Bevel: .25 mm @ 45 degree
 Surface Irregularity: 1/40 Lambda @ 10.6 microns
 Surface Quality: 20-10
 Coating: $R \leq 0.5\%$ Per surface

Diameter (mm)	F#	Effective Focal Length (mm)	Back Focal Length (mm)	Part Number	Prices	
					Uncoated	Coated
12.70	1	12.70	11.04	121106-G	\$250	\$310
12.70	2	25.40	23.83	122106-G	225	300
12.70	3	38.10	36.37	123106-G	215	295
12.70	4	50.80	49.12	124106-G	215	295
12.70	5	63.50	62.52	125106-G	215	295
12.70	6	76.20	75.22	126106-G	215	295
12.70	8	101.60	100.62	128106-G	215	295
19.05	1	19.05	17.22	191106-G	\$270	\$335
19.05	2	38.10	36.37	192106-G	250	320
19.05	3	57.15	55.29	193106-G	250	320
19.05	4	76.20	74.44	194106-G	250	320
19.05	5	95.25	94.09	195106-G	250	320
19.05	6	114.30	113.14	196106-G	250	320
19.05	8	152.40	151.24	198106-G	250	320
25.40	1	25.40	23.39	251106-G	\$290	\$360
25.40	1.5	38.10	36.59	251.5106-G	250	340
25.40	2	50.80	48.92	252106-G	250	325
25.40	3	76.20	74.44	253106-G	250	325
25.40	4	101.60	99.74	254106-G	250	325
25.40	5	127.00	125.55	255106-G	250	325
25.40	6	152.40	150.91	256106-G	250	325
25.40	8	203.20	201.71	258106-G	250	325
25.40	10	254.00	252.51	2510106-G	250	325
38.10	1	38.10	35.18	381106-G	\$360	\$450
38.10	2	76.20	74.14	382106-G	345	435
38.10	3	114.30	112.36	383106-G	345	435
38.10	4	152.40	150.46	384106-G	345	435
38.10	5	190.50	188.56	385106-G	345	435
38.10	6	228.60	226.66	386106-G	345	435
38.10	8	304.80	302.86	388106-G	345	435
50.80	1	50.80	47.85	501106-G	\$460	\$530
50.80	2	101.60	99.31	502106-G	425	500
50.80	3	152.40	150.13	503106-G	425	500
50.80	4	203.20	201.17	504106-G	400	475
50.80	5	254.00	252.04	505106-G	400	475
50.80	6	304.80	302.84	506106-G	400	475
50.80	8	406.40	404.45	508106-G	400	475
50.80	10	508.00	506.04	5010106-G	400	475
50.80	20	1016.00	1014.04	5020106-G	400	475
76.20	1	76.20	72.54	761106-G	O N	O N
76.20	2	152.40	149.52	762106-G		
76.20	3	228.60	226.08	763106-G		
76.20	4	304.80	302.43	764106-G		
76.20	5	381.00	378.16	765106-G	R E Q U E S T	R E Q U E S T
76.20	6	457.20	454.36	766106-G		
76.20	8	609.60	606.76	768106-G		
101.60	1	101.60	97.20	101106-G		
101.60	2	203.20	199.92	102106-G		
101.60	3	304.80	302.00	103106-G		
101.60	4	406.40	403.88	104106-G		
101.60	5	508.00	504.09	105106-G		
101.60	6	609.60	605.69	106106-G		
101.60	8	812.80	808.89	108106-G		

THALLIUM BROMIODIDE (KRS-5) MENISCUS LENS

Design Wavelength: 16 microns
 Effective Focal Length: + - 2%
 Clear Aperture: 90% diameter
 Edge thickness Variation: .025 mm
 Diameter Tolerance: + - .25 mm
 Bevel: .25 mm @ 45 degree
 Surface Quality: 80-50

Diameter (mm)	F#	Effective Focal Length (mm)	Back Focal Length (mm)	Part Number	Prices
12.70	1	12.70	10.72	12116-KRS	\$210
12.70	2	25.40	23.62	12216-KRS	210
12.70	3	38.10	35.79	12316-KRS	210
12.70	4	50.80	48.72	12416-KRS	210
12.70	5	63.50	62.66	12516-KRS	210
12.70	6	76.20	75.36	12616-KRS	210
12.70	8	101.60	100.75	12816-KRS	210
12.70	10	127.00	126.15	121016-KRS	210
19.05	1	19.05	16.15	19116-KRS	\$300
19.05	2	38.10	35.79	19216-KRS	240
19.05	3	57.15	55.17	19316-KRS	240
19.05	4	76.20	74.52	19416-KRS	240
19.05	5	95.25	93.95	19516-KRS	240
19.05	6	114.30	113.01	19616-KRS	240
19.05	8	152.40	151.10	19816-KRS	240
19.05	10	190.50	189.21	191016-KRS	240
25.40	1	25.40	22.18	25116-KRS	\$300
25.40	1.5	38.10	36.41	251.516-KRS	275
25.40	2	50.80	47.87	25216-KRS	265
25.40	3	76.20	73.79	25316-KRS	255
25.40	4	101.60	99.62	25416-KRS	255
25.40	5	127.00	125.74	25516-KRS	255
25.40	6	152.40	151.13	25616-KRS	255
25.40	8	203.20	201.92	25816-KRS	255
25.40	10	254.00	252.73	251016-KRS	255
38.10	1	38.10	34.46	38116-KRS	\$600
38.10	2	76.20	73.74	38216-KRS	500
38.10	3	114.30	112.27	38316-KRS	440
38.10	4	152.40	150.37	38416-KRS	440
38.10	5	190.50	188.47	38516-KRS	440
38.10	6	228.60	226.57	38616-KRS	440
38.10	8	304.80	303.10	38816-KRS	440
38.10	10	381.00	379.31	381016-KRS	440
50.80	1	50.80	46.26	50116-KRS	\$844
50.80	2	101.60	98.39	50216-KRS	725
50.80	3	152.40	149.69	50316-KRS	600
50.80	4	203.20	200.76	50416-KRS	600
50.80	5	254.00	251.70	50516-KRS	565
50.80	6	304.80	302.69	50616-KRS	565
50.80	8	406.40	404.34	50816-KRS	565
50.80	10	508.00	506.00	501016-KRS	565

SILICON (Si) Meniscus Lens

Design Wavelength: 4.3 microns
 Effective Focal Length: + - 2%
 Clear Aperture: 90% diameter
 Edge thickness Variation: .025 mm
 Diameter Tolerance: + 0, - .1 mm
 Bevel: .25 mm @ 45 degree
 Surface Irregularity: 1/10 Lambda @ 4.3 microns
 Surface Quality: 20/10
 Coating: R ≤ 0.5% Per surface

Diameter (mm)	F#	Effective Focal Length (mm)	Back Focal Length	Part Number	Prices	
					Uncoated	Coated
12.70	1	12.70	11.38	12143-S	\$200	
12.70	2	25.40	24.41	12243-S	180	
12.70	3	38.10	37.12	12343-S	180	
12.70	4	50.80	49.82	12443-S	180	
12.70	5	63.50	62.52	12543-S	180	
12.70	6	76.20	75.22	12643-S	180	
12.70	8	101.60	100.62	12843-S	180	
12.70	10	127.00	126.02	121043-S	180	
19.05	1	19.05	17.29	19143-S	\$246	
19.05	2	38.10	36.63	19243-S	200	
19.05	3	57.15	55.70	19343-S	200	
19.05	4	76.20	74.73	19443-S	200	
19.05	5	95.25	93.78	19543-S	200	
19.05	6	114.30	112.83	19643-S	200	
19.05	8	152.40	150.93	19843-S	200	
19.05	10	190.50	189.03	191043-S	200	
25.40	1	25.40	23.44	25143-S	\$330	
25.40	1.5	38.10	36.72	251.543-S	275	
25.40	2	50.80	48.81	25243-S	220	
25.40	3	76.20	74.24	25343-S	210	
25.40	4	101.60	99.59	25443-S	210	
25.40	5	127.00	125.03	25543-S	210	
25.40	6	152.40	150.41	25643-S	210	
25.40	8	203.20	201.17	25843-S	210	
25.40	10	254.00	252.03	251043-S	210	
38.10	1	38.10	35.16	38143-S	\$425	
38.10	2	76.20	74.24	38243-S	375	
38.10	3	114.30	112.36	38343-S	330	
38.10	4	152.40	150.41	38443-S	330	
38.10	5	190.50	188.57	38543-S	330	
38.10	6	228.60	226.69	38643-S	330	
38.10	8	304.80	302.80	38843-S	330	
38.10	10	381.00	379.09	381043-S	330	
50.80	1	50.80	47.32	50143-S	\$500	
50.80	2	101.60	98.58	50243-S	425	
50.80	3	152.40	150.01	50343-S	425	
50.80	4	203.20	201.17	50443-S	425	
50.80	5	254.00	252.03	50543-S	425	
50.80	6	304.80	302.80	50643-S	425	
50.80	8	406.40	404.37	50843-S	425	
76.20	1	76.20	70.33	76143-S		
76.20	2	152.40	147.43	76243-S		
76.20	3	228.60	224.79	76343-S		
76.20	4	304.80	300.80	76443-S		
76.20	5	381.00	377.18	76543-S		
76.20	6	457.20	453.45	76643-S		
76.20	8	609.60	605.32	76843-S		
101.60	1	101.60	97.58	10143-S		
101.60	2	203.20	197.09	10243-S		
101.60	3	304.80	299.77	10343-S		
101.60	4	406.40	401.31	10443-S		
101.60	5	508.00	503.05	10543-S		
101.60	6	609.60	604.25	10643-S		
101.60	8	812.80	807.71	10843-S		
101.60	10	1016.00	1010.79	101043-S		

O N
R E Q U E S TO N
R E Q U E S TO N
R E Q U E S T

ARSENIC TRISULFIDE (AS₂S₃) MENISCUS LENS

Material:	AS ₂ S ₃ Glass
Design Wavelength:	3.5 microns
Focal Length:	+/- 2%
Clear Aperture:	90% diameter
Edge thickness Variation:	.025 mm
Diameter Tolerance:	+/- .25 mm
Bevel:	.25 mm
Surface Quality:	60-40
Surface Irregularity:	1/10 Lambda@ 3.5 microns

Diameter (mm)	F#	Effective Focal Length (mm)	Back Focal Length (mm)	Part Number	Price
12.70	1	12.70	9.92	12135-AT	\$250
12.70	2	25.40	23.04	12235-AT	200
12.70	3	38.10	35.92	12335-AT	200
12.70	4	50.80	48.82	12435-AT	200
12.70	5	63.50	62.65	12535-AT	200
12.70	6	76.20	75.36	12635-AT	200
12.70	8	101.60	100.75	12835-AT	200
12.70	10	127.00	126.15	121035-AT	200
19.05	1	19.05	16.59	19135-AT	\$275
19.05	2	38.10	35.92	19235-AT	220
19.05	3	57.15	55.27	19335-AT	220
19.05	4	76.20	73.93	19435-AT	220
19.05	5	95.25	93.97	19535-AT	220
19.05	6	114.30	113.03	19635-AT	220
19.05	8	152.40	151.12	19835-AT	220
19.05	10	190.50	189.23	191035-AT	220
25.40	1	25.40	22.35	25135-AT	\$300
25.40	2	50.80	48.12	25235-AT	240
25.40	3	76.20	73.93	25335-AT	240
25.40	4	101.60	99.72	25435-AT	240
25.40	5	127.00	125.29	25535-AT	240
25.40	6	152.40	150.68	25635-AT	240
25.40	8	203.20	201.50	25835-AT	240
25.40	10	254.00	252.28	251035-AT	240
35.00	1	35.00	31.48	35135-AT	\$400
35.00	2	70.00	67.61	35235-AT	350
35.00	3	105.00	102.61	35335-AT	350
35.00	4	140.00	137.61	35435-AT	350
35.00	5	175.00	172.61	35535-AT	350
35.00	6	210.00	207.61	35635-AT	350
35.00	8	280.00	277.61	35835-AT	350
35.00	10	350.00	347.61	351035-AT	350
50.80	1	50.80	46.08	50135-AT	\$600
50.80	2	101.60	98.35	50235-AT	450
50.80	3	152.40	149.93	50335-AT	450
50.80	4	203.20	200.83	50435-AT	450
50.80	5	254.00	250.58	50535-AT	450
50.80	6	304.80	301.43	50635-AT	450
50.80	8	406.40	403.00	50835-AT	450
50.80	10	508.00	504.60	501035-AT	450

GALLIUM ARSENIDE (GaAs) Meniscus Lens

Design Wavelength: 10.6 microns
 Effective Focal Length: + - 2%
 Clear Aperture: 90% diameter
 Edge thickness Variation: .025 mm
 Diameter Tolerance: + 0, - .1 mm
 Bevel: .25 mm @ 45 degree
 Surface Irregularity: 1/40 Lambda @ 10.6 microns
 Surface Quality: 20-10
 Coating: R ≤ 0.5% Per surface

Diameter (mm)	F#	Effective Focal Length (mm)	Back Focal Length (mm)	Part Number	Prices	
					Uncoated	Coated
12.70	1	12.70	11.28	121106-GA	\$435	
12.70	2	25.40	24.52	122106-GA	425	
12.70	3	38.10	37.22	123106-GA	425	
12.70	4	50.80	49.92	124106-GA	425	
12.70	5	63.50	62.62	125106-GA	425	
12.70	6	76.20	75.32	126106-GA	425	
12.70	8	101.60	100.72	128106-GA	425	
12.70	10	127.00	126.12	1210106-GA	425	
19.05	1	19.05	16.92	191106-GA	\$460	
19.05	2	38.10	36.76	192106-GA	425	
19.05	3	57.15	55.83	193106-GA	400	
19.05	4	76.20	74.88	194106-GA	400	
19.05	5	95.25	93.91	195106-GA	400	
19.05	6	114.30	112.96	196106-GA	400	
19.05	8	152.40	151.06	198106-GA	400	
19.05	10	190.50	189.18	1910106-GA	400	
25.40	1	25.40	24.06	251106-GA	\$475	
25.40	1.5	38.10	36.63	2515106-GA	475	
25.40	2	50.80	49.02	252106-GA	425	
25.40	3	76.20	74.45	253106-GA	425	
25.40	4	101.60	99.82	254106-GA	425	
25.40	5	127.00	125.25	255106-GA	425	
25.40	6	152.40	150.62	256106-GA	425	
25.40	8	203.20	201.42	258106-GA	425	
25.40	10	254.00	252.22	2510106-GA	425	
38.10	1	38.10	35.46	381106-GA	\$770	
38.10	2	76.20	74.44	382106-GA	620	
38.10	3	114.30	112.80	383106-GA	580	
38.10	4	152.40	150.91	384106-GA	580	
38.10	5	190.50	189.03	385106-GA	580	
38.10	6	228.60	227.08	386106-GA	580	
38.10	8	304.80	302.30	388106-GA	580	
38.10	10	381.00	379.51	3810106-GA	580	
50.80	1	50.80	47.27	501106-GA	\$1665	
50.80	2	101.60	99.41	502106-GA	1445	
50.80	3	152.40	150.22	503106-GA	1250	
50.80	4	203.20	201.00	504106-GA	1250	
50.80	5	254.00	251.75	505106-GA	1250	
50.80	6	304.80	302.59	506106-GA	1250	
50.80	8	406.40	404.24	508106-GA	1250	
50.80	10	508.00	505.75	5010106-GA	1250	

O
N
R
E
Q
U
E
S
TO
N
R
E
Q
U
E
S
T

ZINC SULPHIDE (ZnS) MENISCUS LENS

Material:	ZnS CVD
Design Wavelength:	3.5 microns
Focal Length:	+/- 2%
Clear Aperture:	90% diameter
Edge thickness Variation:	.025 mm
Diameter Tolerance:	+ 0, - .25 mm
Bevel:	.25 mm @ 45 degree
Surface Irregularity:	1/10 Lambda at 3.5 microns
Surface Quality:	40-20

Diameter (mm)	F#	Effective Focal Length (mm)	Back Focal Length (mm)	Part Number	Price (Uncoated)
12.70	1	12.70	11.12	12135-ZS	\$250
12.70	2	25.40	24.26	12235-ZS	200
12.70	3	38.10	37.40	12335-ZS	200
12.70	4	50.80	49.53	12435-ZS	200
12.70	5	63.50	62.34	12535-ZS	200
19.05	1	19.05	17.22	19135-ZS	\$300
19.05	2	38.10	36.64	19235-ZS	250
19.05	3	57.15	55.59	19335-ZS	250
19.05	4	76.20	74.55	19435-ZS	250
19.05	5	95.25	93.84	19535-ZS	250
25.40	1	25.40	23.37	25135-ZS	\$325
25.40	2	50.80	48.53	25235-ZS	300
25.40	3	76.20	75.00	25335-ZS	300
25.40	4	101.60	99.50	25435-ZS	300
25.40	5	127.00	125.18	25535-ZS	300
38.10	1	38.10	34.34	38135-ZS	\$475
38.10	2	76.20	73.85	38235-ZS	345
38.10	3	114.30	112.28	38335-ZS	345
38.10	4	152.40	150.31	38435-ZS	345
38.10	5	190.50	188.23	38535-ZS	345
50.80	1	50.80	46.01	50135-ZS	\$750
50.80	2	101.60	98.77	50235-ZS	700
50.80	3	152.40	150.43	50335-ZS	700
50.80	4	203.20	201.23	50435-ZS	700
50.80	5	254.00	252.11	50535-ZS	700

NEGATIVE MENISCUS LENS

Material:	Ge, ZnSe
Design Wavelength:	10.6 microns
Effective Focal Length:	+ - 2%
Clear Aperture:	90% diameter
Edge thickness Variation:	.025 mm
Diameter Tolerance:	+ 0, - .25 mm
Bevel	.25 mm @ 45 degree
Surface Irregularity	1/40 Lambda @ 10.6 microns
Surface Quality:	20-10
Coating:	R≤0.5% Per surface

Diameter (mm)	Effective Focal Length (mm)	Ge Part Number	Prices		ZnSe Part Number	Prices	
			Uncoated	Coated		Uncoated	Coated
12.7	- 12.7	121106-GN	\$265	\$325	121106-ZSN	\$350	\$395
12.7	- 25.4	122106-GN	210	270	122106-ZSN	310	355
12.7	- 38.1	123106-GN	210	270	123106-ZSN	310	355
12.7	- 50.8	124106-GN	210	270	124106-ZSN	310	355
12.7	- 63.5	125106-GN	210	270	125106-ZSN	310	355
19.0	- 19.0	191106-GN	\$285	\$350	191106-ZSN	\$360	\$415
19.0	- 38.1	192106-GN	285	350	192106-ZSN	360	415
19.0	- 57.1	193106-GN	285	350	193106-ZSN	360	415
19.0	- 76.2	194106-GN	285	350	194106-ZSN	360	415
19.0	- 95.3	195106-GN	285	350	195106-ZSN	360	415
25.4	- 25.4	251106-GN	\$300	\$375	251106-ZSN	\$ 370	\$ 430
25.4	- 50.8	252106-GN	300	375	252106-ZSN	330	390
25.4	- 76.2	253106-GN	300	375	253106-ZSN	330	390
25.4	-101.6	254106-GN	300	375	254106-ZSN	330	390
25.4	-127.0	255106-GN	300	375	255106-ZSN	330	390
38.1	- 38.1	381106-GN	\$375	\$460	381106-ZSN	\$ 550	\$ 635
38.1	- 76.2	382106-GN	375	460	382106-ZSN	480	550
38.1	-114.3	383106-GN	375	460	383106-ZSN	475	550
38.1	-152.4	384106-GN	375	460	384106-ZSN	475	550
38.1	-190.5	385106-GN	375	460	385106-ZSN	475	550
50.8	- 50.8	501106-GN	\$475	\$550	501106-ZSN	\$1200	\$1300
50.8	-101.6	502106-GN	425	500	502106-ZSN	930	1000
50.8	-152.4	503106-GN	425	500	503106-ZSN	930	1000
50.8	-203.2	504106-GN	425	500	504106-ZSN	930	1000
50.8	-254.0	505106-GN	425	500	505106-ZSN	930	1000

BARIUM FLUORIDE (BaF₂) BICONVEX LENS

Design Wavelength:
Effective Focal Length:
Clear Aperture:
Edge thickness Variation:
Diameter Tolerance:
Bevel:
Surface Irregularity:
Surface Quality:

6.0 microns
+ - 2% at design wavelength
90% diameter
.025 mm
+ 0, - .25 mm
.25 mm
1 Lambda at sodium light
40-20

Diameter (mm)	F#	Effective Focal Length (mm)	Back Focal Length (mm)	Part Number	Price
12.70	1	12.70	9.73	1216-BF	\$275
12.70	2	25.40	23.72	1226-BF	200
12.70	3	38.10	36.81	1236-BF	162
12.70	4	50.80	48.62	1246-BF	162
12.70	5	63.50	62.50	1256-BF	162
12.70	6	76.20	75.27	1266-BF	162
12.70	8	101.60	100.76	1286-BF	162
12.70	10	127.00	126.17	12106-BF	162
12.70	12	152.40	151.56	12126-BF	162
12.70	20	254.00	253.15	12206-BF	162
19.05	1	19.05	14.34	1916-BF	\$300
19.05	2	38.10	36.00	1926-BF	250
19.05	3	57.15	55.43	1936-BF	233
19.05	4	76.20	73.33	1946-BF	180
19.05	5	95.25	94.04	1956-BF	180
19.05	6	114.30	113.23	1966-BF	180
19.05	8	152.40	151.33	1986-BF	180
19.05	10	190.50	189.42	19106-BF	180
19.05	12	228.60	227.52	19126-BF	180
19.05	20	381.00	379.92	19206-BF	180
25.40	1	25.40	21.70	2516-BF	\$325
25.40	1.5	38.10	35.02	251.56-BF	300
25.40	2	50.80	48.90	2526-BF	270
25.40	3	76.20	74.58	2536-BF	204
25.40	4	101.60	99.92	2546-BF	195
25.40	5	127.00	125.54	2556-BF	195
25.40	6	152.40	150.94	2566-BF	195
25.40	8	203.20	201.75	2586-BF	195
25.40	10	254.00	252.55	25106-BF	195
25.40	12	304.80	303.34	25126-BF	195
25.40	20	508.00	506.55	25206-BF	195
38.10	1	38.10	29.42	3816-BF	\$555
38.10	2	76.20	72.12	3826-BF	450
38.10	3	114.30	111.37	3836-BF	345
38.10	4	152.40	149.96	3846-BF	275
38.10	5	190.50	188.41	3856-BF	275
38.10	6	228.60	226.67	3866-BF	275
38.10	8	304.80	303.23	3886-BF	275
38.10	10	381.00	379.50	38106-BF	275
38.10	12	457.20	455.77	38126-BF	275
38.10	20	762.00	760.59	38206-BF	275
50.80	1	50.80	45.21	5016-BF	\$1030
50.80	2	101.60	97.79	5026-BF	820
50.80	3	152.40	149.50	5036-BF	675
50.80	4	203.20	200.84	5046-BF	600
50.80	5	254.00	251.22	5056-BF	600
50.80	6	304.80	302.95	5066-BF	500
50.80	8	406.40	404.78	5086-BF	500
50.80	10	508.00	506.51	50106-BF	500
50.80	12	609.60	608.12	50126-BF	500
50.80	20	1016.00	1014.65	50206-BF	500

BARIUM FLUORIDE (BaF₂) BICONVEX LENS

Design Wavelength :	10.6 microns
Effective Focal Length:	+ - 2% at design wavelength
Clear Aperture :	90% diameter
Edge thickness Variation :	.025 mm
Diameter Tolerance :	+ 0, - .25 mm
Bevel :	.25 mm
Surface Irregularity :	1 Lambda at sodium light
Surface Quality :	40-20

Diameter (mm)	F#	Effective Focal Length (mm)	Back Focal Length (mm)	Part Number	Price
12.70	1	12.70	10.57	121106-BF	\$275
12.70	2	25.40	23.64	122106-BF	200
12.70	3	38.10	36.76	123106-BF	162
12.70	4	50.80	49.63	124106-BF	162
12.70	5	63.50	62.47	125106-BF	162
12.70	6	76.20	75.24	126106-BF	162
12.70	8	101.60	100.72	128106-BF	162
12.70	10	127.00	126.20	1210106-BF	162
12.70	12	152.40	151.60	1212106-BF	162
12.70	20	254.00	253.19	1220106-BF	162
19.05	1	19.05	15.89	191106-BF	\$300
19.05	2	38.10	35.77	192106-BF	250
19.05	3	57.15	55.26	193106-BF	233
19.05	4	76.20	74.74	194106-BF	180
19.05	5	95.25	94.01	195106-BF	180
19.05	6	114.30	113.13	196106-BF	180
19.05	8	152.40	151.30	198106-BF	180
19.05	10	190.50	189.41	1910106-BF	180
19.05	12	228.60	227.50	1912106-BF	180
19.05	20	381.00	379.91	1920106-BF	180
25.40	1	25.40	22.35	251106-BF	\$325
25.40	1.5	38.10	34.63	2515106-BF	300
25.40	2	50.80	48.26	252106-BF	270
25.40	3	76.20	74.21	253106-BF	204
25.40	4	101.60	99.19	254106-BF	195
25.40	5	127.00	125.23	255106-BF	195
25.40	6	152.40	150.04	256106-BF	195
25.40	8	203.20	202.05	258106-BF	195
25.40	10	254.00	252.86	2510106-BF	195
25.40	12	304.80	303.66	2512106-BF	195
25.40	20	508.00	506.86	2520106-BF	195
38.10	1	38.10	31.73	381106-BF	\$555
38.10	2	76.20	71.80	382106-BF	450
38.10	3	114.30	110.91	383106-BF	345
38.10	4	152.40	149.76	384106-BF	275
38.10	5	190.50	188.33	385106-BF	275
38.10	6	228.60	226.41	386106-BF	275
38.10	8	304.80	302.61	388106-BF	275
38.10	10	381.00	378.83	3810106-BF	275
38.10	12	457.20	455.01	3812106-BF	275
38.10	20	762.00	759.83	3820106-BF	275
50.80	1	50.80	44.97	501106-BF	\$1030
50.80	2	101.60	96.85	502106-BF	820
50.80	3	152.40	148.97	503106-BF	675
50.80	4	203.20	199.92	504106-BF	600
50.80	5	254.00	251.15	505106-BF	600
50.80	6	304.80	302.19	506106-BF	500
50.80	8	406.40	404.24	508106-BF	500
50.80	10	508.00	506.05	5010106-BF	500
50.80	12	609.60	607.73	5012106-BF	500
50.80	20	1016.00	1014.45	5020106-BF	500

CALCIUM FLUORIDE (CaF₂) BICONVEX LENS

Design Wavelength:
Effective Focal Length:
Clear Aperture:
Edge thickness Variation:
Diameter Tolerance:
Bevel:
Surface Irregularity:
Surface Quality:

1.5 microns
+ - 2% at design wavelength
90% diameter
.025 mm
+ 0, - .25 mm
.25 mm
1 Lambda at sodium light
40-20

Diameter (mm)	F#	Effective Focal Length (mm)	Back Focal Length (mm)	Part Number	Price
12.70	1	12.70	10.55	12115-CF	\$230
12.70	2	25.40	22.56	12215-CF	165
12.70	3	38.10	35.38	12315-CF	125
12.70	4	50.80	47.37	12415-CF	125
12.70	5	63.50	59.41	12515-CF	125
12.70	6	76.20	71.48	12615-CF	125
12.70	8	101.60	100.71	12815-CF	125
12.70	10	127.00	126.11	121015-CF	125
12.70	12	152.40	151.51	121215-CF	125
19.05	1	19.05	16.30	19115-CF	\$250
19.05	2	38.10	34.72	19215-CF	200
19.05	3	57.15	53.97	19315-CF	175
19.05	4	76.20	71.93	19415-CF	137
19.05	5	95.25	89.99	19515-CF	137
19.05	6	114.30	108.10	19615-CF	137
19.05	8	152.40	151.28	19815-CF	137
19.05	10	190.50	189.38	191015-CF	137
19.05	12	228.60	227.48	191215-CF	137
25.40	1	25.40	21.49	25115-CF	\$250
25.40	1.5	38.10	34.51	251.515-CF	200
25.40	2	50.80	46.86	25215-CF	187
25.40	3	76.20	72.54	25315-CF	150
25.40	4	101.60	96.49	25415-CF	143
25.40	5	127.00	120.57	25515-CF	137
25.40	6	152.40	149.07	25615-CF	137
25.40	8	203.20	201.71	25815-CF	137
25.40	10	254.00	252.51	251015-CF	137
25.40	12	304.80	303.32	251215-CF	137
38.10	1	38.10	32.26	38115-CF	\$295
38.10	2	76.20	71.73	38215-CF	230
38.10	3	114.30	111.17	38315-CF	210
38.10	4	152.40	149.72	38415-CF	188
38.10	5	190.50	188.26	38515-CF	188
38.10	6	228.60	226.36	38615-CF	188
38.10	8	304.80	302.56	38815-CF	188
38.10	10	381.00	378.76	381015-CF	188
38.10	12	457.20	454.96	381215-CF	188
38.10	20	762.00	759.76	382015-CF	138
50.80	1	50.80	42.97	50115-CF	\$450
50.80	2	101.60	95.50	50215-CF	375
50.80	3	152.40	146.88	50315-CF	285
50.80	4	203.20	198.78	50415-CF	260
50.80	5	254.00	250.52	50515-CF	260
50.80	6	304.80	301.60	50615-CF	260
50.80	8	406.40	403.88	50815-CF	260
50.80	10	508.00	505.32	501015-CF	260
50.80	12	609.60	606.91	501215-CF	260
76.20	1	76.20	69.60	76115-CF	O
76.20	2	152.40	144.14	76215-CF	N
76.20	3	228.60	221.20	76315-CF	R
76.20	4	304.80	299.82	76415-CF	E
76.20	5	381.00	376.65	76515-CF	Q
76.20	6	457.00	453.29	76615-CF	U
76.20	8	609.60	605.87	76815-CF	E
76.20	10	762.00	759.02	761015-CF	S
76.20	12	914.40	911.43	761215-CF	T

FUSED SILICA (SiO₂) BICONVEX LENS

Design Wavelength:
Effective Focal Length:
Clear Aperture:
Edge thickness Variation:
Diameter Tolerance:
Bevel:
Surface Irregularity:
Surface Quality:

1.0 microns
+ - 2% at design wavelength
90% diameter
.025 mm
+ / - .25 mm
.25 mm
1 Lambda at sodium light
40-20

Diameter (mm)	F#	Effective Focal Length (mm)	Back Focal Length (mm)	Part Number	Price
12.70	1	12.70	10.78	1211-Q	\$125
12.70	2	25.40	22.55	1221-Q	110
12.70	3	38.10	35.15	1231-Q	110
12.70	4	50.80	47.06	1241-Q	110
12.70	5	63.50	59.05	1251-Q	110
12.70	6	76.20	71.07	1261-Q	110
12.70	8	101.60	100.70	1281-Q	110
12.70	10	127.00	126.10	12101-Q	110
19.05	1	19.05	16.17	1911-Q	\$129
19.05	2	38.10	34.77	1921-Q	112
19.05	3	57.15	53.61	1931-Q	110
19.05	4	76.20	71.50	1941-Q	110
19.05	5	95.25	89.46	1951-Q	110
19.05	6	114.30	111.51	1961-Q	110
19.05	8	152.40	151.27	1981-Q	110
19.05	10	190.50	189.37	19101-Q	110
25.40	1	25.40	21.56	2511-Q	\$170
25.40	2	50.80	46.96	2521-Q	141
25.40	3	76.20	72.09	2531-Q	112
25.40	4	101.60	95.91	2541-Q	112
25.40	5	127.00	123.90	2551-Q	112
25.40	6	152.40	148.69	2561-Q	112
25.40	8	203.20	201.70	2581-Q	112
25.40	10	254.00	252.50	25101-Q	112
38.10	1	38.10	31.08	3811-Q	\$237
38.10	2	76.20	72.23	3821-Q	190
38.10	3	114.30	111.35	3831-Q	180
38.10	4	152.40	150.04	3841-Q	180
38.10	5	190.50	188.29	3851-Q	180
38.10	6	228.60	226.40	3861-Q	180
38.10	8	304.80	302.59	3881-Q	180
38.10	10	381.00	378.80	38101-Q	180
50.80	1	50.80	43.07	5011-Q	\$315
50.80	2	101.60	95.71	5021-Q	257
50.80	3	152.40	145.97	5031-Q	200
50.80	4	203.20	198.27	5041-Q	200
50.80	5	254.00	250.60	5051-Q	186
50.80	6	304.80	301.67	5061-Q	186
50.80	8	406.40	403.40	5081-Q	186
50.80	10	508.00	505.00	50101-Q	186
76.20	1	76.20	65.44	7611-Q	O
76.20	2	152.40	144.44	7621-Q	N
76.20	3	228.60	222.73	7631-Q	R
76.20	4	304.80	299.97	7641-Q	E
76.20	5	381.00	376.78	7651-Q	Q
76.20	6	457.00	453.39	7661-Q	U
76.20	8	609.60	605.85	7681-Q	E
76.20	10	762.00	758.25	76101-Q	S

T

ZINC SELENIDE PLANO-CONVEX LENS

Material:	CVD ZnSe
Design Wavelength:	10.6 microns
Effective Focal Length:	$\pm 2\%$ at Design Wavelength
Clear Aperture:	90%
Edge Thickness Variation:	.025 mm
Diameter Tolerance:	+ 0, -.25 mm
Bevel	.25 mm @ 45 degree
Surface Irregularity	1/40 Lambda @ 10.6 microns
Surface Quality:	20-10
Coating:	R $\leq$.5% Per surface

Diameter (mm)	F#	Effective Focal Length (mm)	Part Number	Prices	
				Uncoated	Coated
12.70	1	12.70	121106-ZSX	\$225	\$275
12.70	2	25.40	122106-ZSX	200	250
12.70	3	38.10	123106-ZSX	200	250
12.70	4	50.80	124106-ZSX	200	250
12.70	5	63.50	125106-ZSX	200	250
12.70	6	76.20	126106-ZSX	200	250
12.70	8	101.60	128106-ZSX	200	250
12.70	10	127.00	1210106-ZSX	200	250
19.05	1	19.05	191106-ZSX	\$255	\$305
19.05	2	38.10	192106-ZSX	200	275
19.05	3	57.15	193106-ZSX	200	275
19.05	4	76.20	194106-ZSX	200	275
19.05	5	95.25	195106-ZSX	200	275
19.05	6	114.30	196106-ZSX	200	275
19.05	8	152.40	198106-ZSX	200	275
19.05	10	190.50	1910106-ZSX	200	275
25.40	1	25.40	251106-ZSX	\$275	\$350
25.40	2	50.80	252106-ZSX	205	305
25.40	3	76.20	253106-ZSX	205	305
25.40	4	101.60	254106-ZSX	205	305
25.40	5	127.00	255106-ZSX	205	305
25.40	6	152.40	256106-ZSX	205	305
25.40	8	203.20	258106-ZSX	205	305
25.40	10	254.00	2510106-ZSX	205	305
27.94	1	25.40	271106-ZSX	\$376	\$430
27.94	2	50.80	272106-ZSX	280	355
27.94	3	76.20	273106-ZSX	280	355
27.94	4	101.60	274106-ZSX	280	355
27.94	5	127.00	275106-ZSX	280	355
27.94	6	152.40	276106-ZSX	280	355
27.94	8	203.20	278106-ZSX	280	355
27.94	10	254.00	2710106-ZSX	280	355
38.10	1	38.10	381106-ZSX	\$483	\$543
38.10	2	76.20	382106-ZSX	345	405
38.10	3	114.30	383106-ZSX	345	405
38.10	4	152.40	384106-ZSX	345	405
38.10	5	190.50	385106-ZSX	345	405
38.10	6	228.60	386106-ZSX	345	405
38.10	8	304.80	388106-ZSX	345	405
38.10	10	381.00	3810106-ZSX	345	405
50.80	1	50.80	501106-ZSX	\$860	\$980
50.80	2	101.60	502106-ZSX	720	820
50.80	3	152.40	503106-ZSX	700	800
50.80	4	203.20	504106-ZSX	700	800
50.80	5	254.00	505106-ZSX	700	800
50.80	6	304.80	506106-ZSX	700	800
50.80	8	406.40	508106-ZSX	700	800
50.80	10	508.00	5010106-ZSX	700	800

GERMANIUM PLANO-CONVEX LENS

Material:	Optical Ge N-type
Design Wavelength:	10.6 microns
Effective Focal Length:	+ - 2% at design wavelength
Clear Aperture:	90%
Edge Thickness Variation (ETV):	.025 mm
Diameter Tolerance:	+ 0, - .1 mm
Bevel	.25 mm @ 45 degree
Surface Irregularity	1/40 Lambda @ 10.6 microns
Surface Quality:	20-10
Coating:	R ≤ .5% Per surface

Diameter (mm)	F#	Effective Focal Length (mm)	Part Number	Prices Uncoated	Coated
12.70	1	12.70	121106-GX	\$143	\$250
12.70	2	25.40	122106-GX	143	250
12.70	3	38.10	123106-GX	143	250
12.70	4	50.80	124106-GX	143	250
12.70	5	63.50	125106-GX	143	250
12.70	6	76.20	126106-GX	143	250
12.70	8	101.60	128106-GX	143	250
12.70	10	127.00	1210106-GX	143	250
19.05	1	19.05	191106-GX	\$150	\$250
19.05	2	38.10	192106-GX	150	250
19.05	3	57.15	193106-GX	150	250
19.05	4	76.20	194106-GX	150	250
19.05	5	95.25	195106-GX	150	250
19.05	6	114.30	196106-GX	150	250
19.05	8	152.40	198106-GX	150	250
19.05	10	190.50	1910106-GX	150	250
25.40	1	25.40	251106-GX	\$159	\$263
25.40	2	50.80	252106-GX	159	250
25.40	3	76.20	253106-GX	159	250
25.40	4	101.60	254106-GX	159	250
25.40	5	127.00	255106-GX	159	250
25.40	6	152.40	256106-GX	159	250
25.40	8	203.20	258106-GX	159	250
25.40	10	254.00	2510106-GX	159	250
27.94	1	25.40	271106-GX	\$175	\$275
27.94	2	50.80	272106-GX	175	275
27.94	2.5	63.50	2725106-GX	175	275
27.94	3	76.20	273106-GX	175	275
27.94	4	101.60	274106-GX	175	275
27.94	5	127.00	275106-GX	175	275
27.94	6	152.40	276106-GX	175	275
27.94	8	203.20	278106-GX	175	275
27.94	10	254.00	2710106-GX	175	275
38.10	1	38.10	381106-GX	\$295	\$385
38.10	2	76.20	382106-GX	230	315
38.10	3	114.30	383106-GX	230	315
38.10	4	152.40	384106-GX	230	315
38.10	5	190.50	385106-GX	230	315
38.10	6	228.60	386106-GX	230	315
38.10	8	304.80	388106-GX	230	315
38.10	10	381.00	3810106-GX	230	315
50.80	1	50.80	501106-GX	\$400	\$500
50.80	2	101.60	502106-GX	335	435
50.80	3	152.40	503106-GX	335	435
50.80	4	203.20	504106-GX	335	435
50.80	5	254.00	505106-GX	335	435
50.80	6	304.80	506106-GX	335	435
50.80	8	406.40	508106-GX	335	435
50.80	10	508.00	5010106-GX	335	435

GALLIUM ARSENIDE PLANO-CONVEX LENS

Material:	Optical (Chromium Doped) GaAs
Design Wavelength:	10.6 microns
Effective Focal Length:	+ - 2% at design wavelength
Clear Aperture:	90%
Edge Thickness Variation:	.025 mm
Diameter Tolerance:	+ 0, - .1 mm
Bevel:	.25 mm @ 45 degree
Surface Irregularity:	1/40 Lambda @ 10.6 microns
Surface Quality:	20-10
Coating:	R .5% Per surface

Diameter (mm)	F#	Effective Focal Length (mm)	Part Number	Price Uncoated
12.70	1	12.70	121106-GAX	\$200
12.70	2	25.40	122106-GAX	200
12.70	3	38.10	123106-GAX	200
12.70	4	50.80	124106-GAX	200
12.70	5	63.50	125106-GAX	200
12.70	6	76.20	126106-GAX	200
12.70	8	101.60	128106-GAX	200
12.70	10	127.00	1210106-GAX	200
12.70	15	190.50	1215106-GAX	200
12.70	20	254.00	1220106-GAX	200
19.05	1	19.05	191106-GAX	\$250
19.05	2	38.10	192106-GAX	210
19.05	3	57.15	193106-GAX	210
19.05	4	76.20	194106-GAX	210
19.05	5	95.25	195106-GAX	210
19.05	6	114.30	196106-GAX	210
19.05	8	152.40	198106-GAX	210
19.05	10	190.50	1910106-GAX	210
19.05	15	285.75	1915106-GAX	210
19.05	20	381.00	1920106-GAX	210
25.40	1	25.40	251106-GAX	\$300
25.40	2	50.80	252106-GAX	250
25.40	3	76.20	253106-GAX	250
25.40	4	101.60	254106-GAX	250
25.40	5	127.00	255106-GAX	250
25.40	6	152.40	256106-GAX	250
25.40	8	203.20	258106-GAX	250
25.40	10	254.00	2510106-GAX	250
25.40	15	381.00	2515106-GAX	250
25.40	20	508.00	2520106-GAX	250
38.10	1	38.10	381106-GAX	\$675
38.10	2	76.20	382106-GAX	475
38.10	3	114.30	383106-GAX	475
38.10	4	152.40	384106-GAX	475
38.10	5	190.50	385106-GAX	475
38.10	6	228.60	386106-GAX	475
38.10	8	304.80	388106-GAX	475
38.10	10	381.00	3810106-GAX	475
38.10	15	571.50	3815106-GAX	475
38.10	20	762.00	3820106-GAX	475
50.80	1	50.80	501106-GAX	\$1250
50.80	2	101.60	502106-GAX	1050
50.80	3	152.40	503106-GAX	1050
50.80	4	203.20	504106-GAX	1050
50.80	5	254.00	505106-GAX	1050
50.80	6	304.80	506106-GAX	1050
50.80	8	406.40	508106-GAX	1050
50.80	10	508.00	5010106-GAX	1050
50.80	15	762.00	5015106-GAX	1050
50.80	20	1016.00	5020106-GAX	1050

BARIUM FLUORIDE (BaF₂) PLANO-CONVEX LENS

Design Wavelength:	5.3 microns
Effective Focal Length:	+ - 5% at design wavelength
Clear Aperture:	90%
Edge Thickness Variation (ETV):	.025 mm
Diameter Tolerance:	+ 0, - .25 mm
Bevel	.25 mm
Surface Irregularity	1 Lambda @ sodium light
Surface Quality:	40-20

Diameter (mm)	F#	Effective Focal Length (mm)	Part Number	Price
12.70	2	25.40	12253-BFX	\$200
12.70	3	38.10	12353-BFX	162
12.70	4	50.80	12453-BFX	162
12.70	5	63.50	12553-BFX	162
12.70	6	76.20	12653-BFX	162
12.70	8	101.60	12853-BFX	162
12.70	10	127.00	121053-BFX	162
12.70	12	152.40	121253-BFX	162
12.70	15	190.50	121553-BFX	162
12.70	20	254.00	122053-BFX	162
25.40	2	50.80	25253-BFX	\$270
25.40	3	76.20	25353-BFX	204
25.40	4	101.60	25453-BFX	195
25.40	5	127.00	25553-BFX	195
25.40	6	152.40	25653-BFX	195
25.40	8	203.20	25853-BFX	195
25.40	10	254.00	251053-BFX	195
25.40	12	304.80	251253-BFX	195
25.40	15	381.00	251553-BFX	195
25.40	20	508.00	252053-BFX	195
38.10	2	76.20	38253-BFX	\$450
38.10	3	114.30	38353-BFX	345
38.10	4	152.40	38453-BFX	275
38.10	5	190.50	38553-BFX	275
38.10	6	228.60	38653-BFX	275
38.10	8	304.80	38853-BFX	275
38.10	10	381.00	381053-BFX	275
38.10	12	457.20	381253-BFX	275
38.10	15	571.50	381553-BFX	275
38.10	20	762.00	382053-BFX	275
50.80	2	101.60	50253-BFX	\$820
50.80	3	152.40	50353-BFX	675
50.80	4	203.20	50453-BFX	600
50.80	5	254.00	50553-BFX	600
50.80	6	304.80	50653-BFX	500
50.80	8	406.40	50853-BFX	500
50.80	10	508.00	501053-BFX	500
50.80	12	609.60	501253-BFX	500
50.80	15	762.00	501553-BFX	500
50.80	20	1016.00	502053-BFX	500

UV CALCIUM FLUORIDE (CaF₂) PLANO-CONVEX LENS

Material:	CaF ₂
Design Wavelength:	.193 microns
Effective Focal Length:	± 5%
Clear Aperture:	90%
Edge Thickness Variation:	.025 mm
Diameter Tolerance:	+ 0, - .25 mm
Bevel:	.25 mm
Surface Irregularity:	1 Lambda @ sodium light
Surface Quality:	40-20

Diameter (mm)	F#	Effective Focal Length (mm)	Part Number	Price
12.70	2	25.40	122193-CFX	\$165
12.70	3	38.10	123193-CFX	125
12.70	4	50.80	124193-CFX	125
12.70	5	63.50	125193-CFX	125
12.70	6	76.20	126193-CFX	125
12.70	8	101.60	128193-CFX	125
12.70	10	127.00	1210193-CFX	125
12.70	12	152.40	1212193-CFX	125
12.70	15	190.50	1215193-CFX	125
12.70	20	254.00	1220193-CFX	125
25.40	2	50.80	252193-CFX	\$245
25.40	3	76.20	253193-CFX	175
25.40	4	101.60	254193-CFX	135
25.40	5	127.00	255193-CFX	135
25.40	6	152.40	256193-CFX	135
25.40	8	203.20	258193-CFX	135
25.40	10	254.00	2510193-CFX	135
25.40	12	304.80	2512193-CFX	135
25.40	15	381.00	2515193-CFX	135
25.40	20	508.00	2520193-CFX	135
38.10	2	76.20	382193-CFX	\$275
38.10	3	114.30	383193-CFX	210
38.10	4	152.40	384193-CFX	188
38.10	5	190.50	385193-CFX	188
38.10	6	228.60	386193-CFX	188
38.10	8	304.80	388193-CFX	188
38.10	10	381.00	3810193-CFX	188
38.10	12	457.20	3812193-CFX	188
38.10	15	571.50	3815193-CFX	188
38.10	20	762.00	3820193-CFX	188
50.80	2	101.60	502193-CFX	\$375
50.80	3	152.40	503193-CFX	285
50.80	4	203.20	504193-CFX	275
50.80	5	254.00	505193-CFX	260
50.80	6	304.80	506193-CFX	260
50.80	8	406.40	508193-CFX	260
50.80	10	508.00	5010193-CFX	260
50.80	12	609.60	5012193-CFX	260
50.80	15	762.00	5015193-CFX	260
50.80	20	1016.00	5020193-CFX	260

UV FUSED SILICA PLANO CONVEX LENS

Design Wavelength: 193 nm
 Effective Focal Length: $\pm 5\%$
 Clear Aperture: 90% diameter
 Edge Thickness Variation (ETV): .025 mm
 Diameter Tolerance: + 0, - .25 mm
 Bevel: .25 mm
 Surface Irregularity: 1 Lambda at sodium light
 Surface Quality: 40-20

Diameter (mm)	F#	Effective Focal Length (mm)	Part Number	Price
12.70	2	25.40	122193-QUX	\$135
12.70	3	38.10	123193-QUX	135
12.70	4	50.80	124193-QUX	135
12.70	5	63.50	125193-QUX	135
12.70	6	76.20	126193-QUX	135
12.70	8	101.60	128193-QUX	135
12.70	10	127.00	1210193-QUX	135
12.70	12	152.40	1212193-QUX	135
12.70	15	190.50	1215193-QUX	135
12.70	20	254.00	1220193-QUX	135
25.40	2	50.80	252193-QUX	\$162
25.40	3	76.20	253193-QUX	162
25.40	4	101.60	254193-QUX	162
25.40	5	127.00	255193-QUX	162
25.40	6	152.40	256193-QUX	162
25.40	8	203.20	258193-QUX	162
25.40	10	254.00	2510193-QUX	162
25.40	12	304.80	2512193-QUX	162
25.40	15	381.00	2515193-QUX	162
25.40	20	508.00	2520193-QUX	162
38.10	2	76.20	382193-QUX	\$200
38.10	3	114.30	383193-QUX	190
38.10	4	152.40	384193-QUX	190
38.10	5	190.50	385193-QUX	190
38.10	6	228.60	386193-QUX	190
38.10	8	304.80	388193-QUX	190
38.10	10	381.00	3810193-QUX	190
38.10	12	457.20	3812193-QUX	190
38.10	15	571.50	3815193-QUX	190
38.10	20	762.00	3820193-QUX	190
50.80	2	101.60	502193-QUX	\$260
50.80	3	152.40	503193-QUX	260
50.80	4	203.20	504193-QUX	260
50.80	5	254.00	505193-QUX	260
50.80	6	304.80	506193-QUX	260
50.80	8	406.40	508193-QUX	260
50.80	10	508.00	5010193-QUX	260
50.80	12	609.60	5012193-QUX	260
50.80	15	762.00	5015193-QUX	260
50.80	20	1016.00	5020193-QUX	260

2-KRSW	125	38.10	5
3-KRSW	125	38.10	6
1-KRSW	145	50.80	2
2-KRSW	145	50.80	3
3-KRSW	145	50.80	4
4-KRSW	150	50.80	5
5-KRSW	150	50.80	6

SILICON (Si) WINDOWS

Part No.	Prices	Diameter (mm)	Thickne (mm)
1-SW	\$60	25.40	6
2-SW	60	38.10	2
3-SW	60	38.10	3
1-SW	70	38.10	4
2-SW	70	38.10	5
3-SW	70	38.10	6
1-SW	75	50.80	2
2-SW	100	50.80	3
3-SW	110	50.80	4
4-SW	110	50.80	5
5-SW	110	50.80	6

LITHIUM FLUORIDE (LiF₂) PLANO CONVEX LENS

Design Wavelength: 193 nm
 Effective Focal Length: $\pm 5\%$
 Clear Aperture: 90% diameter
 Edge Thickness Variation (ETV): .025 mm
 Diameter Tolerance: +0, -.25 mm
 Bevel: .25 mm
 Surface Irregularity 1 Lambda @ sodium light
 Surface Quality: 40-20

Diameter (mm)	F#	Effective Focal Length (mm)	Part Number	Price
12.70	2	25.40	122193-LFX	\$275
12.70	3	38.10	123193-LFX	230
12.70	4	50.80	124193-LFX	225
12.70	5	63.50	125193-LFX	200
12.70	6	76.20	126193-LFX	200
12.70	8	101.60	128193-LFX	200
12.70	10	127.00	1210193-LFX	200
12.70	12	152.40	1212193-LFX	200
12.70	15	190.50	1215193-LFX	200
12.70	20	254.00	1220193-LFX	200
25.40	2	50.80	252193-LFX	\$295
25.40	3	76.20	253193-LFX	240
25.40	4	101.60	254193-LFX	230
25.40	5	127.00	255193-LFX	205
25.40	6	152.40	256193-LFX	205
25.40	8	203.20	258193-LFX	205
25.40	10	254.00	2510193-LFX	205
25.40	12	304.80	2512193-LFX	205
25.40	15	381.00	2515193-LFX	205
25.40	20	508.00	2520193-LFX	205
38.10	2	76.20	382193-LFX	\$400
38.10	3	114.30	383193-LFX	370
38.10	4	152.40	384193-LFX	350
38.10	5	190.50	385193-LFX	340
38.10	6	228.60	386193-LFX	330
38.10	8	304.80	388193-LFX	320
38.10	10	381.00	3810193-LFX	320
38.10	12	457.20	3812193-LFX	320
38.10	15	571.50	3815193-LFX	320
38.10	20	762.00	3820193-LFX	320
50.80	2	101.60	502193-LFX	\$670
50.80	3	152.40	503193-LFX	620
50.80	4	203.20	504193-LFX	576
50.80	5	254.00	505193-LFX	550
50.80	6	304.80	506193-LFX	500
50.80	8	406.40	508193-LFX	500
50.80	10	508.00	5010193-LFX	500
50.80	12	609.60	5012193-LFX	500
50.80	15	762.00	5015193-LFX	500
50.80	20	1016.00	5020193-LFX	500

MAGNESIUM FLUORIDE (MgF₂) PLANO CONVEX LENS

Design Wavelength: 193 nm
 Effective Focal Length: $\pm 5\%$
 Clear Aperture: 90% diameter
 Edge Thickness Variation (ETV): .025 mm
 Diameter Tolerance: + 0, - .25 mm
 Bevel: .25 mm
 Surface Irregularity: 1 Lambda @ sodium light
 Surface Quality: 40-20

Diameter (mm)	F#	Effective Focal Length (mm)	Part Number	Price
12.70	2	25.40	122193-MFX	\$275
12.70	3	38.10	123193-MFX	230
12.70	4	50.80	124193-MFX	225
12.70	5	63.50	125193-MFX	200
12.70	6	76.20	126193-MFX	200
12.70	8	101.60	128193-MFX	200
12.70	10	127.00	1210193-MFX	200
12.70	12	152.40	1212193-MFX	200
12.70	15	190.50	1215193-MFX	200
12.70	20	254.00	1220193-MFX	200
25.40	2	50.80	252193-MFX	\$295
25.40	3	76.20	253193-MFX	240
25.40	4	101.60	254193-MFX	230
25.40	5	127.00	255193-MFX	205
25.40	6	152.40	256193-MFX	205
25.40	8	203.20	258193-MFX	205
25.40	10	254.00	2510193-MFX	205
25.40	12	304.80	2512193-MFX	205
25.40	15	381.00	2515193-MFX	205
25.40	20	508.00	2520193-MFX	205
38.10	2	76.20	382193-MFX	\$400
38.10	3	114.30	383193-MFX	370
38.10	4	152.40	384193-MFX	350
38.10	5	190.50	385193-MFX	340
38.10	6	228.60	386193-MFX	330
38.10	8	304.80	388193-MFX	320
38.10	10	381.00	3810193-MFX	320
38.10	12	457.20	3812193-MFX	320
38.10	15	571.50	3815193-MFX	320
38.10	20	762.00	3820193-MFX	320
50.80	2	101.60	502193-MFX	\$670
50.80	3	152.40	503193-MFX	620
50.80	4	203.20	504193-MFX	576
50.80	5	254.00	505193-MFX	550
50.80	6	304.80	506193-MFX	500
50.80	8	406.40	508193-MFX	500
50.80	10	508.00	5010193-MFX	500
50.80	12	609.60	5012193-MFX	500
50.80	15	762.00	5015193-MFX	500
50.80	20	1016.00	5020193-MFX	500

PLANO-CONCAVE LENSES

Material:	CaF ₂ , BaF ₂ , Quartz
Design Wavelength:	5 & 1.06 microns
Effective Focal Length:	± 5%
Clear Aperture:	90% diameter
Edge thickness Variation:	.025 mm
Diameter Tolerance:	+ 0, - .25 mm
Bevel:	.25 mm @ 45 degree
Surface Irregularity:	½ Lambda @ .5893 Microns
Surface Quality:	60-40

Diameter (mm)	Effective Focal Length (mm)	CaF ₂ Part Number	Price	BaF ₂ Part Number	Price	Quartz Part Number	Price
12.7	-25.4	1225-CFV	\$165	1225-BFV	\$200	1221-QV	\$160
12.7	-38.1	1235-CFV	135	1235-BFV	162	1231-QV	130
12.7	-50.8	1245-CFV	135	1245-BFV	162	1241-QV	130
12.7	-63.5	1255-CFV	135	1255-BFV	162	1251-QV	130
19.0	-38.1	1925-CFV	\$200	1925-BFV	\$250	1921-QV	\$200
19.0	-57.1	1935-CFV	175	1935-BFV	230	1931-QV	165
19.0	-76.2	1945-CFV	175	1945-BFV	180	1941-QV	165
19.0	-95.3	1955-CFV	175	1955-BFV	180	1951-QV	165
25.4	-50.8	2525-CFV	\$250	2525-BFV	\$270	2521-QV	\$240
25.4	-76.2	2535-CFV	200	2535-BFV	225	2531-QV	175
25.4	-101.6	2545-CFV	200	2545-BFV	200	2541-QV	150
25.4	-127.0	2555-CFV	200	2555-BFV	200	2551-QV	150
25.4	-152.4	2565-CFV	200	2565-BFV	190	2561-QV	150
25.4	-203.2	2585-CFV	200	2585-BFV	190	2581-QV	150
25.4	-254.0	25105-CFV	200	25105-BFV	190	25101-QV	150
38.1	-76.2	3825-CFV	\$325	3825-BFV	\$450	3821-QV	\$260
38.1	-114.3	3835-CFV	300	3835-BFV	385	3831-QV	200
38.1	-152.4	3845-CFV	300	3845-BFV	365	3841-QV	200
38.1	-190.5	3855-CFV	300	3855-BFV	345	3851-QV	200
38.1	-228.6	3865-CFV	300	3865-BFV	345	3861-QV	200
38.1	-304.8	3885-CFV	300	3885-BFV	345	3881-QV	200
38.1	-381.0	38105-CFV	300	38105-BFV	345	38101-QV	200
50.8	-101.6	5025-CFV	\$375	5025-BFV	\$820	5021-QV	\$275
50.8	-152.4	5035-CFV	320	5035-BFV	675	5031-QV	250
50.8	-203.2	5045-CFV	320	5045-BFV	650	5041-QV	220
50.8	-254.0	5055-CFV	320	5055-BFV	600	5051-QV	220
50.8	-304.8	5065-CFV	320	5065-BFV	500	5061-QV	220
50.8	-406.4	5085-CFV	320	5085-BFV	500	5081-QV	220
50.8	-508.0	50105-CFV	320	50105-BFV	500	50101-QV	220

CYLINDRICAL LENSES

Shape:
Effective Focal Length:

Plano-Convex, Uncoated
 $\pm 10\%$

Diameter (mm)	Effective Focal Length (mm)	Ge Part Number	Price	ZnSe Part Number	Price	BaF ₂ Part Number	Price
25.4	50.8	252-CLN-G	\$250	252-CLN-ZS	\$300	252-CLN-BF	\$350
25.4	76.2	253-CLN-G	250	253-CLN-ZS	300	253-CLN-BF	350
25.4	101.6	254-CLN-G	250	254-CLN-ZS	300	254-CLN-BF	335
25.4	127.0	255-CLN-G	250	255-CLN-ZS	300	255-CLN-BF	335
25.4	152.4	256-CLN-G	250	256-CLN-ZS	300	256-CLN-BF	335
25.4	203.2	258-CLN-G	250	258-CLN-ZS	300	258-CLN-BF	320
25.4	254.0	2510-CLN-G	250	2510-CLN-ZS	300	2510-CLN-BF	320
25.4	381.0	2515-CLN-G	250	2515-CLN-ZS	300	2515-CLN-BF	320
25.4	508.0	2520-CLN-G	250	2520-CLN-ZS	300	2520-CLN-BF	320
38.1	76.2	382-CLN-G	\$325	382-CLN-ZS	\$475	382-CLN-BF	\$650
38.1	114.3	383-CLN-G	325	383-CLN-ZS	475	383-CLN-BF	575
38.1	152.4	384-CLN-G	325	384-CLN-ZS	475	384-CLN-BF	500
38.1	190.5	385-CLN-G	325	385-CLN-ZS	475	385-CLN-BF	440
38.1	228.6	386-CLN-G	325	386-CLN-ZS	475	386-CLN-BF	440
38.1	304.8	388-CLN-G	325	388-CLN-ZS	475	388-CLN-BF	440
38.1	381.0	3810-CLN-G	325	3810-CLN-ZS	475	3810-CLN-BF	440
38.1	571.5	3815-CLN-G	325	3815-CLN-ZS	475	3815-CLN-BF	440
38.1	762.0	3820-CLN-G	325	3820-CLN-ZS	475	3820-CLN-BF	440
50.8	101.6	502-CLN-G	\$450	502-CLN-ZS	\$930	502-CLN-BF	\$950
50.8	152.4	503-CLN-G	450	503-CLN-ZS	850	503-CLN-BF	850
50.8	203.2	504-CLN-G	450	504-CLN-ZS	850	504-CLN-BF	750
50.8	254.0	505-CLN-G	450	505-CLN-ZS	780	505-CLN-BF	750
50.8	304.8	506-CLN-G	450	506-CLN-ZS	780	506-CLN-BF	750
50.8	406.4	508-CLN-G	450	508-CLN-ZS	780	508-CLN-BF	750
50.8	508.0	5010-CLN-G	450	5010-CLN-ZS	780	5010-CLN-BF	675
50.8	762.0	5015-CLN-G	450	5015-CLN-ZS	780	5015-CLN-BF	675
50.8	1016.0	5020-CLN-G	450	5020-CLN-ZS	780	5020-CLN-BF	675

Note: Prices for other sizes and material also available.

CYLINDRICAL LENSES

Shape:

Effective Focal Length:

Plano-Convex, Uncoated
± 10%

Diameter (mm)	Effective Focal Length (mm)	Quartz Part Number	Price	KRS-5 Part Number	Price	CaF ₂ Part Number	Price
25.4	50.8	252-CLN-Q	\$250	252-CLN-KRS	\$325	252-CLN-CF	\$275
25.4	76.2	253-CLN-Q	250	253-CLN-KRS	300	253-CLN-CF	275
25.4	101.6	254-CLN-Q	250	254-CLN-KRS	300	254-CLN-CF	260
25.4	127.0	255-CLN-Q	250	255-CLN-KRS	300	255-CLN-CF	260
25.4	152.4	256-CLN-Q	250	256-CLN-KRS	300	256-CLN-CF	260
25.4	203.2	258-CLN-Q	250	258-CLN-KRS	300	258-CLN-CF	260
25.4	254.0	2510-CLN-Q	250	2510-CLN-KRS	300	2510-CLN-CF	260
25.4	381.0	2515-CLN-Q	250	2515-CLN-KRS	300	2515-CLN-CF	260
25.4	508.0	2520-CLN-Q	250	2520-CLN-KRS	300	2520-CLN-CF	260
38.1	76.2	382-CLN-Q	\$325	382-CLN-KRS	\$475	382-CLN-CF	\$450
38.1	114.3	383-CLN-Q	325	383-CLN-KRS	475	383-CLN-CF	400
38.1	152.4	384-CLN-Q	325	384-CLN-KRS	475	384-CLN-CF	375
38.1	190.5	385-CLN-Q	325	385-CLN-KRS	475	385-CLN-CF	350
38.1	228.6	386-CLN-Q	325	386-CLN-KRS	475	386-CLN-CF	350
38.1	304.8	388-CLN-Q	325	388-CLN-KRS	475	388-CLN-CF	350
38.1	381.0	3810-CLN-Q	325	3810-CLN-KRS	475	3810-CLN-CF	350
38.1	571.5	3815-CLN-Q	325	3815-CLN-KRS	475	3815-CLN-CF	350
38.1	762.0	3820-CLN-Q	325	3820-CLN-KRS	475	3820-CLN-CF	350
50.8	101.6	502-CLN-Q	\$450	502-CLN-KRS	\$825	502-CLN-CF	\$700
50.8	152.4	503-CLN-Q	425	503-CLN-KRS	800	503-CLN-CF	650
50.8	203.2	504-CLN-Q	425	504-CLN-KRS	735	504-CLN-CF	500
50.8	254.0	505-CLN-Q	425	505-CLN-KRS	725	505-CLN-CF	500
50.8	304.8	506-CLN-Q	425	506-CLN-KRS	725	506-CLN-CF	500
50.8	406.4	508-CLN-Q	425	508-CLN-KRS	725	508-CLN-CF	500
50.8	508.0	5010-CLN-Q	425	5010-CLN-KRS	725	5010-CLN-CF	450
50.8	762.0	5015-CLN-Q	425	5015-CLN-KRS	725	5015-CLN-CF	450
50.8	1016.0	5020-CLN-Q	425	5020-CLN-KRS	725	5020-CLN-CF	450

Note: Prices for other sizes & materials also available.

GERMANIUM (Ge) WINDOWS

Diameter (mm)	Thickness (mm)	Part No.	Prices		Diameter (mm)	Thickness (mm)	Part No.	Prices	
			Uncoated	Coated				Uncoated	Coated
12.70	1	121-GW	\$ 65	\$150	25.40	6	256-GW	\$152	\$225
12.70	2	122-GW	65	150	38.10	2	382-GW	180	270
12.70	3	123-GW	65	150	38.10	3	383-GW	200	270
19.05	1	191-GW	70	175	38.10	4	384-GW	200	290
19.05	2	192-GW	75	175	38.10	5	385-GW	200	300
19.05	3	193-GW	85	175	38.10	6	386-GW	223	313
25.40	1	251-GW	102	182	50.80	2	502-GW	226	326
25.40	2	252-GW	112	190	50.80	3	503-GW	226	326
25.40	3	253-GW	120	200	50.80	4	504-GW	270	370
25.40	4	254-GW	125	225	50.80	5	505-GW	300	400
25.40	5	255-GW	125	225	50.80	6	506-GW	315	415

ZINC SELENIDE (ZnSe) WINDOWS

Diameter (mm)	Thickness (mm)	Part No.	Prices		Diameter (mm)	Thickness (mm)	Part No.	Prices	
			Uncoated	Coated				Uncoated	Coated
12.70	1	121-ZSW	\$ 75	\$155	25.40	6	256-ZSW	\$215	\$295
12.70	2	122-ZSW	75	155	38.10	2	382-ZSW	270	360
12.70	3	123-ZSW	75	155	38.10	3	383-ZSW	315	405
19.05	1	191-ZSW	100	175	38.10	4	384-ZSW	360	450
19.05	2	192-ZSW	100	175	38.10	5	385-ZSW	385	475
19.05	3	193-ZSW	105	185	38.10	6	386-ZSW	405	495
25.40	1	251-ZSW	123	210	50.80	2	502-ZSW	520	620
25.40	2	252-ZSW	135	220	50.80	3	503-ZSW	530	625
25.40	3	253-ZSW	175	250	50.80	4	504-ZSW	570	670
25.40	4	254-ZSW	195	275	50.80	5	505-ZSW	630	730
25.40	5	255-ZSW	205	285	50.80	6	506-ZSW	690	790

GALLIUM ARSENIDE (GaAs) WINDOWS

Diameter (mm)	Thickness (mm)	Part No.	Prices	Diameter (mm)	Thickness (mm)	Part No.	Prices
12.70	1	121-GAW	\$110	25.40	6	256-GAW	\$265
12.70	2	122-GAW	120	38.10	2	382-GAW	375
12.70	3	123-GAW	125	38.10	3	383-GAW	400
19.05	1	191-GAW	150	38.10	4	384-GAW	425
19.05	2	192-GAW	155	38.10	5	385-GAW	450
19.05	3	193-GAW	180	38.10	6	386-GAW	475
25.40	1	251-GAW	195	50.80	2	502-GAW	800
25.40	2	252-GAW	200	50.80	3	503-GAW	780
25.40	3	253-GAW	215	50.80	4	504-GAW	850
25.40	4	254-GAW	235	50.80	5	505-GAW	900
25.40	5	255-GAW	250	50.80	6	506-GAW	945

BARIUM FLUORIDE (BaF₂) WINDOWS

Diameter (mm)	Thickness (mm)	Part No.	Prices	Diameter (mm)	Thickness (mm)	Part No.	Prices
12.70	1	121-BFW	\$90	25.40	6	256-BFW	\$190
12.70	2	122-BFW	90	38.10	2	382-BFW	240
12.70	3	123-BFW	90	38.10	3	383-BFW	250
19.05	1	191-BFW	105	38.10	4	384-BFW	260
19.05	2	192-BFW	105	38.10	5	385-BFW	300
19.05	3	193-BFW	105	38.10	6	386-BFW	300
25.40	1	251-BFW	125	50.80	2	502-BFW	350
25.40	2	252-BFW	135	50.80	3	503-BFW	350
25.40	3	253-BFW	140	50.80	4	504-BFW	400
25.40	4	254-BFW	150	50.80	5	505-BFW	450
25.40	5	255-BFW	180	50.80	6	506-BFW	487

CALCIUM FLUORIDE (CaF₂) WINDOWS

Diameter (mm)	Thickness (mm)	Part No.	Prices	Diameter (mm)	Thickness (mm)	Part No.	Prices
12.70	1	121-CFW	\$60	25.40	6	256-CFW	\$ 90
12.70	2	122-CFW	60	38.10	2	382-CFW	100
12.70	3	123-CFW	60	38.10	3	383-CFW	105
19.05	1	191-CFW	60	38.10	4	384-CFW	110
19.05	2	192-CFW	60	38.10	5	385-CFW	110
19.05	3	193-CFW	60	38.10	6	386-CFW	115
25.40	1	251-CFW	75	50.80	2	502-CFW	120
25.40	2	252-CFW	75	50.80	3	503-CFW	135
25.40	3	253-CFW	75	50.80	4	504-CFW	150
25.40	4	254-CFW	85	50.80	5	505-CFW	150
25.40	5	255-CFW	85	50.80	6	506-CFW	150

FUSED SILICA (SiO₂) WINDOWS

Diameter (mm)	Thickness (mm)	Part No.	Prices	Diameter (mm)	Thickness (mm)	Part No.	Prices
12.70	1	121-QW	\$50	25.40	6	256-QW	\$ 75
12.70	2	122-QW	50	38.10	2	382-QW	85
12.70	3	123-QW	50	38.10	3	383-QW	85
19.05	1	191-QW	60	38.10	4	384-QW	85
19.05	2	192-QW	60	38.10	5	385-QW	85
19.05	3	193-QW	60	38.10	6	386-QW	90
25.40	1	251-QW	65	50.80	2	502-QW	125
25.40	2	252-QW	65	50.80	3	503-QW	125
25.40	3	253-QW	65	50.80	4	506-QW	125
25.40	4	254-QW	70	50.80	5	505-QW	130
25.40	5	255-QW	70	50.80	6	506-QW	130

THALLIUM BROMIODIDE (KRS-5) WINDOWS

Diameter (mm)	Thickness (mm)	Part No.	Prices	Diameter (mm)	Thickness (mm)	Part No.	Prices
12.70	1	121-KRSW	\$90	25.40	6	256-KRSW	\$160
12.70	2	122-KRSW	90	38.10	2	382-KRSW	320
12.70	3	123-KRSW	90	38.10	3	383-KRSW	320
19.05	1	191-KRSW	125	38.10	4	384-KRSW	320
19.05	2	192-KRSW	125	38.10	5	385-KRSW	345
19.05	3	193-KRSW	125	38.10	6	386-KRSW	370
25.40	1	251-KRSW	145	50.80	2	502-KRSW	450
25.40	2	252-KRSW	145	50.80	3	503-KRSW	450
25.40	3	253-KRSW	145	50.80	4	504-KRSW	460
25.40	4	254-KRSW	150	50.80	5	505-KRSW	475
25.40	5	255-KRSW	150	50.80	6	506-KRSW	500

SILICON (Si) WINDOWS

Diameter (mm)	Thickness (mm)	Part No.	Prices	Diameter (mm)	Thickness (mm)	Part No.	Prices
12.70	1	121-SW	\$60	25.40	6	256-SW	\$110
12.70	2	122-SW	60	38.10	2	382-SW	180
12.70	3	123-SW	60	38.10	3	383-SW	180
19.05	1	191-SW	70	38.10	4	384-SW	180
19.05	2	192-SW	70	38.10	5	385-SW	180
19.05	3	193-SW	70	38.10	6	386-SW	180
25.40	1	251-SW	75	50.80	2	502-SW	235
25.40	2	252-SW	100	50.80	3	503-SW	235
25.40	3	253-SW	110	50.80	4	504-SW	250
25.40	4	254-SW	110	50.80	5	505-SW	250
25.40	5	255-SW	110	50.80	6	506-SW	250

ARSENIC TRISULPHIDE (AS₂S₃) WINDOWS

Diameter (mm)	Thickness (mm)	Part No.	Prices	Diameter (mm)	Thickness (mm)	Part No.	Prices
12.70	1	121-ATW	\$80	25.40	6	256-ATW	\$110
12.70	2	122-ATW	80	35.00	2	352-ATW	170
12.70	3	123-ATW	80	35.00	3	353-ATW	170
19.05	1	191-ATW	80	35.00	4	354-ATW	170
19.05	2	192-ATW	80	35.00	5	355-ATW	170
19.05	3	193-ATW	80	35.00	6	356-ATW	170
25.40	1	251-ATW	110	50.80	2	502-ATW	285
25.40	2	252-ATW	110	50.80	3	503-ATW	285
25.40	3	253-ATW	110	50.80	4	504-ATW	285
25.40	4	254-ATW	110	50.80	5	505-ATW	285
25.40	5	255-ATW	110	50.80	6	506-ATW	285

LITHIUM FLUORIDE (LiF₂) WINDOWS

Diameter (mm)	Thickness (mm)	Part No.	Prices	Diameter (mm)	Thickness (mm)	Part No.	Prices
12.70	1	121-LFW	\$107	25.40	6	256-LFW	\$165
12.70	2	122-LFW	107	38.10	2	382-LFW	230
12.70	3	123-LFW	107	38.10	3	383-LFW	230
19.05	1	191-LFW	130	38.10	4	384-LFW	230
19.05	2	192-LFW	130	38.10	5	385-LFW	240
19.05	3	193-LFW	130	38.10	6	386-LFW	240
25.40	1	251-LFW	150	50.80	2	502-LFW	380
25.40	2	252-LFW	150	50.80	3	503-LFW	380
25.40	3	253-LFW	150	50.80	4	504-LFW	380
25.40	4	254-LFW	155	50.80	5	505-LFW	390
25.50	5	255-LFW	155	50.80	6	506-LFW	400

MAGNESIUM FLUORIDE (MgF₂) WINDOWS

Diameter (mm)	Thickness (mm)	Part No.	Prices	Diameter (mm)	Thickness (mm)	Part No.	Prices
12.70	1	121-MFW	\$116	25.40	6	256-MFW	\$216
12.70	2	122-MFW	116	38.10	2	382-MFW	328
12.70	3	123-MFW	116	38.10	3	383-MFW	328
19.05	1	191-MFW	150	38.10	4	384-MFW	328
19.05	2	192-MFW	150	38.10	5	385-MFW	358
19.05	3	193-MFW	150	38.10	6	386-MFW	358
25.40	1	251-MFW	186	50.80	2	502-MFW	530
25.40	2	252-MFW	186	50.80	3	503-MFW	530
25.40	3	253-MFW	186	50.80	4	504-MFW	530
25.40	4	254-MFW	200	50.80	5	505-MFW	580
25.40	5	255-MFW	200	50.80	6	506-MFW	580

Crystal Size	NaCl	KCl	KBr	AgCl	CSI
6mm × 1mm	\$33.00	\$34.00	\$ 40.00	\$ 84.00	\$100.00
13mm × 2mm	24.00	30.00	36.00	80.00	146.00
20mm × 2mm	26.00	28.00	34.00	84.00	176.00
22mm × 4mm	26.00	28.00	34.00	116.00	198.00
25mm × 4mm	24.00	30.00	36.00	140.00	214.00
25.2mm × 5mm	24.00	30.00	36.00	152.00	220.00
32mm × 3mm	34.00	42.00	56.00	210.00	298.00
38mm × 6mm	54.00	60.00	80.00	400.00	370.00
49mm × 6mm	70.00	76.00	160.00	660.00	496.00
50mm × 3mm	68.00	72.00	120.00	680.00	470.00

BREWSTER ANGLE WINDOWS

Material: Germanium
 Dimensional Tolerance: $\pm .25$ mm
 Flatness: Lambda over 40 @ 10.6 microns
 Parallelism: 1 minute
 Surface Quality: 40-20
 Clear Aperture: 90% of length or width

Length (mm)	Width (mm)	Thickness (mm)	Part Number	Price
41.91	10.16	2.0	4191-GBW	\$135
52.58	12.70	2.0	5258-GBW	150
62.99	15.24	2.0	6299-GBW	175
73.41	17.78	2.0	7341-GBW	225
84.07	20.32	3.0	8407-GBW	335
94.49	22.86	3.0	9449-GBW	400
104.90	25.40	3.0	10490-GBW	500
157.50	38.10	3.0	15750-GBW	On Request
209.80	50.80	3.0	20980-GBW	On Request

BREWSTER ANGLE WINDOWS

Material: Zinc Selenide
 Dimensional Tolerance: $\pm .25$ mm
 Flatness: Lambda over 40 @ 10.6 microns
 Parallelism: 1 minute
 Surface Quality: 40-20
 Clear Aperture: 90% of length or width

Length (mm)	Width (mm)	Thickness (mm)	Part Number	Price
26.42	10.16	3.0	2642-ZSBW	\$115
33.02	12.70	3.0	3302-ZSBW	125
39.62	15.24	3.0	3962-ZSBW	166
46.23	17.78	3.0	4623-ZSBW	206
52.83	20.32	3.0	5283-ZSBW	253
59.44	22.86	3.0	5944-ZSBW	295
66.04	25.40	3.0	6604-ZSBW	358
99.31	38.10	3.0	9931-ZSBW	719

BREWSTER ANGLE WINDOWS

Material: CaF_2
 Dimensional Tolerance: $\pm .25$ mm
 Flatness: Lambda over 10 @ 5 microns
 Parallelism: 1 minute
 Surface Quality: 40-20
 Clear Aperture: 90% of length or width

Length (mm)	Width (mm)	Thickness (mm)	Part Number	price
25.40	12.70	3	2540-CFBW	\$75
38.10	19.05	3	3810-CFBW	110
50.80	25.40	3	5080-CFBW	150
63.50	31.75	4	6350-CFBW	250
76.20	38.10	5	7620-CFBW	335
101.60	50.80	6	10160-CFBW	600

PLANO PARTIAL REFLECTORS

SPECIFICATIONS

Substrates: ZnSe, Ge

Dia. Tol.: +0, -.25 mm

Thickness Tol.: $\pm .25$ mm

C.A.: 90% of Dia.

Parallelism Dia. 12.7, 19.0, 25.4 mm: 3'

Dia. 28.0, 38.1, 50.8 mm: 1'

Flatness: $1/40$ Lambda @ 10.6 μ

Surface Quality: 40-20

Coating Wavelength: 10.6 μ

Standard Reflectivity (%) Values: 17, 36 (Group A)

50, 65, 80, 90, 95 (Group B)

97, 98, 99 (Group C)

Back Side: A/R Coated

Dia.	Thick	Refl.	Ge P#	Price	ZnSe P#	Price
12.7	3	Group A	123-GPPR-A	\$185	123-ZSPPR-A	\$195
12.7	3	Group B	123-GPPR-B	290	123-ZSPPR-B	300
12.7	3	Group C	123-GPPR-C	365	123-ZSPPR-C	375
19.0	3	Group A	193-GPPR-A	205	193-ZSPPR-A	225
19.0	3	Group B	193-GPPR-B	310	193-ZSPPR-B	330
19.0	3	Group C	193-GPPR-C	385	193-ZSPPR-C	405
25.4	3	Group A	253-GPPR-A	250	253-ZSPPR-A	275
25.4	3	Group B	253-GPPR-B	350	253-ZSPPR-B	375
25.4	3	Group C	253-GPPR-C	425	253-ZSPPR-C	450
28.0	3	Group A	283-GPPR-A	275	283-ZSPPR-A	300
28.0	3	Group B	283-GPPR-B	375	283-ZSPPR-B	400
28.0	3	Group C	283-GPPR-C	450	283-ZSPPR-C	475
38.1	3	Group A	383-GPPR-A	320	383-ZSPPR-A	435
38.1	3	Group B	383-GPPR-B	425	383-ZSPPR-B	540
38.1	3	Group C	383-GPPR-C	500	383-ZSPPR-C	615
50.8	3	Group A	503-GPPR-A	350	503-ZSPPR-A	670
50.8	3	Group B	503-GPPR-B	450	503-ZSPPR-B	810
50.8	3	Group C	503-GPPR-C	550	503-ZSPPR-C	900

Note: Plano Partial Reflectors made out of GaAs available on request.

Other Sizes & Coatings for other than 10.6 microns available.

CONCAVE PARTIAL REFLECTORS

SPECIFICATIONS

Substrates: ZnSe, Ge

Dia. Tol.: +0, - .25 mm

Thickness Tol.: $\pm$.25 mm

C.A.: 90% of Dia.

Parallelism: Dia. 12.7, 19.0, 25.4 mm: 3

Dia. 28, 38.1, 50.8 mm: 1

Flatness: $\frac{1}{40}$ Lambda @ 10.6 μ

Surface Quality: 40-20

Coating Wavelength: 10.6 μ

Radii Available: 1, 2, 3, 4, 5, 6, 10 Meters

Standard Refl. (%) : 17, 36 (Group A)

50, 65, 80, 90, 95 (Group B)

97, 98, 99 (Group C)

Back Side: A/R Coated

Dia.	Thick	Refl.	Ge P#	Price	ZnSe P#	Price
12.7	3	Group A	123-GCPR-A	\$210	123-ZSCPR-A	\$220
12.7	3	Group B	123-GCPR-B	315	123-ZSCPR-B	325
12.7	3	Group C	123-GCPR-C	390	123-ZSCPR-C	400
19.0	3	Group A	193-GCPR-A	235	193-ZSCPR-A	255
19.0	3	Group B	193-GCPR-B	340	193-ZSCPR-B	360
19.0	3	Group C	193-GCPR-C	415	193-ZSCPR-C	435
25.4	3	Group A	253-GCPR-A	285	253-ZSCPR-A	310
25.4	3	Group B	253-GCPR-B	385	253-ZSCPR-B	410
25.4	3	Group C	253-GCPR-C	460	253-ZSCPR-C	485
28.0	3	Group A	283-GCPR-A	315	283-ZSCPR-A	340
28.0	3	Group B	283-GCPR-B	415	283-ZSCPR-B	440
28.0	3	Group C	283-GCPR-C	490	283-ZSCPR-C	515
38.1	3	Group A	383-GCPR-A	365	383-ZSCPR-A	480
38.1	3	Group B	383-GCPR-B	470	383-ZSCPR-B	585
38.1	3	Group C	383-GCPR-C	545	383-ZSCPR-C	660
50.8	3	Group A	503-GCPR-A	400	503-ZSCPR-A	720
50.8	3	Group B	503-GCPR-B	500	503-ZSCPR-B	860
50.8	3	Group C	503-GCPR-C	600	503-ZSCPR-C	950

Note: Other Sizes & Coatings for other than 10.6 microns available.

Concave Partial Reflectors made out of GaAs available on request.

PARTIAL REFLECTOR SUBSTRATES

Diameter (mm)	Radius R ₁	Radius R ₂	Thickness (mm)	Germanium Part #	Price	Zinc Selenide Part #	Price
12.70	Specify	Plano	3	12G-PRS	\$95	12ZS-PRS	\$105
19.05	"	"	3	19G-PRS	105	19ZS-PRS	140
25.40	"	"	3	25G-PRS	120	25ZS-PRS	185
27.94	"	"	3	27G-PRS	175	27ZS-PRS	210
38.10	"	"	3	38G-PRS	200	38ZS-PRS	330
44.50	"	"	3	44G-PRS	225	44ZS-PRS	450
50.80	"	"	3	50G-PRS	260	50ZS-PRS	550

Note: a) Standard Radii: 1, 2, 3, 4, 5, 6, 10 M & Plano.

b) Partial Reflective Coating & other sizes available. See pages 32,33.

SILICON MIRROR UNCOATED/COATED

Diameter (mm)	Radius R ₁	Radius R ₂	Thickness (mm)	Part #	Uncoated Price	Coated Price
12.70	Specify	Fine Ground	3	12S-SMS	\$85	\$150
19.05	"	"	3	19S-SMS	85	150
25.40	"	"	3	25S-SMS	85	150
27.94	"	"	3	27S-SMS	95	175
38.10	"	"	3	38S-SMS	125	200
44.50	"	"	3	44S-SMS	140	225
50.80	"	"	3	50S-SMS	185	250

Note: Total Reflecting Coating Available.

Standard Radii: 1, 2, 3, 4, 5, 6, 10M & Plano.

LENS MENISCUS

1.100" Lens, Meniscus

Design Wavelength = 10.6 microns

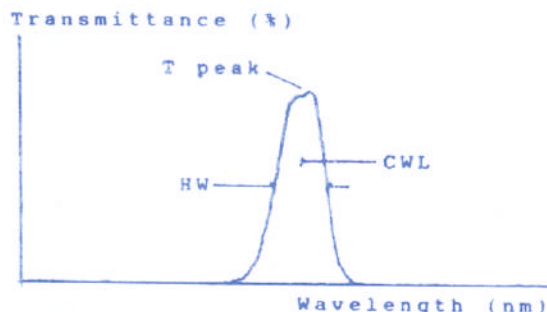
Diameter (mm)	F #	E.F.L. (mm)	Germanium Part #	Prices		ZnSe Part #	Prices	
				Uncoated	Coated		Uncoated	Coated
27.94	1	25.40	271106-G	\$275	\$320	271106-ZS	\$450	\$535
27.94	1.5	38.10	2715106-G	255	305	2715106-ZS	375	455
27.94	2.5	63.50	2725106-G	220	285	2725106-ZS	285	365
27.94	3.7	95.25	2737106-G	215	285	2737106-ZS	280	360
27.94	5	127.00	275106-G	215	285	275106-ZS	280	350
27.94	7.5	190.25	2775106-G	215	285	2775106-ZS	280	350
27.94	10.0	254.00	2710106-G	215	285	2710106-ZS	280	350

BANDPASS-FILTERS

35

INFRARED FILTERS

STANDARD STOCK



- Size: Diameter 25.4 +0/- 0.2 mm
- Transmittance: > 50%
- Blocking avg. 0.1% from X-ray to:
A: 1200 nm; B: 3500 nm; C: 6500 nm D: Far IR; E: 10500 nm
- Transmission curve: supplied with each filter type

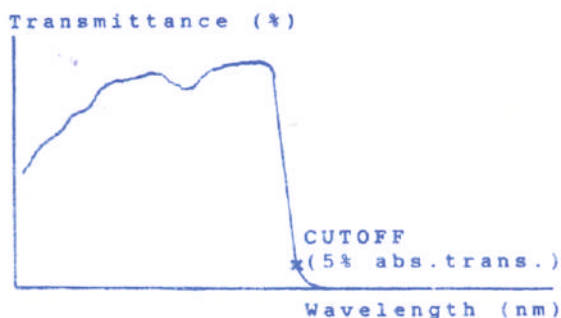
Catalog No.	CWL nm	± Tol nm	HW nm	± Tol nm	Price
BP-0835-050-A	835	10	50	10	\$300
BP-0850-050-A	850	10	50	10	300
BP-0850-070-A	850	10	70	10	300
BP-0865-055-A	865	10	55	10	300
BP-0890-055-A	890	10	55	10	300
NB-0900-020-A	900	20	20	5	300
BP-0900-055-A	900	10	55	10	300
NB-0910-015-A	910	10	15	3	300
BP-0920-055-A	920	10	55	10	300
BP-1000-055-A	1000	10	55	10	300
NB-1057-016-A	1057	5	16	4	300
NB-1062-015-A	1062	3	15	4	300
NB-1067-025-A	1067	4	25	5	300
NB-1080-010-A	1080	10	10	2	300
NB-1080-030-A	1080	10	30	5	300
BP-1100-090-B*	1100	25	90	20	300
BP-1110-070-B*	1110	10	70	10	300
NB-1125-010-B*	1125	5	10	2	300
NB-1130-015-B*	1130	5	15	3	300
NB-1140-010-B*	1140	5	10	2	300
NB-1140-015-B*	1140	5	15	3	300
NB-1170-010-B*	1170	10	10	2	300
NB-1180-010-B*	1180	5	10	3	300
NB-1190-010-B*	1190	5	10	3	300
BP-1200-090-B*	1200	25	90	20	350
NB-1210-010-B*	1210	10	10	2	350
NB-1225-010-B*	1225	5	10	2	350
NB-1225-025-B*	1225	5	25	5	350
NB-1235-025-B*	1235	5	25	5	350
NB-1270-010-B*	1270	5	10	2	350
BP-1270-080-B*	1270	10	80	10	350
NB-1300-030-B	1300	20	30	5	350
BP-1300-090-B	1300	20	90	30	350
NB-1325-030-B	1325	5	30	5	350
NB-1330-030-B	1330	5	30	5	350
BP-1330-080-B	1330	5	80	10	350
BP-1350-090-B	1350	15	90	15	350
NB-1400-030-B	1400	10	30	5	350
BP-1400-090-B	1400	10	90	20	350
NB-1425-030-B	1425	10	30	5	350
NB-1430-008-B	1430	5	8	2	350
NB-1445-010-B	1445	5	10	2	350

Catalog No.	CWL nm	± Tol nm	HW nm	± Tol nm	Price
NB-1450-032-B	1450	10	32	5	\$350
BP-1460-080-B	1460	10	80	10	350
NB-1480-033-B	1480	10	33	5	350
BP-1500-090-B	1500	25	90	25	350
NB-1530-033-B	1530	10	33	5	350
NB-1540-032-B	1540	10	32	5	350
BP-1570-080-B	1570	10	80	10	350
NB-1600-033-B	1600	10	33	5	350
NB-1625-065-B	1625	15	65	10	350
BP-1625-100-B	1625	15	100	20	350
NB-1650-010-B	1650	10	10	3	350
NB-1650-035-B	1650	10	35	5	350
NB-1670-037-B	1670	10	37	6	350
NB-1680-010-B	1680	5	10	2	350
NB-1685-033-B	1685	10	33	5	350
BP-1700-090-B	1700	25	90	25	350
NB-1715-010-B	1715	5	10	2	350
NB-1720-010-B	1720	5	10	2	350
NB-1730-010-B	1730	5	10	2	350
NB-1730-038-B	1730	10	38	6	350
BP-1740-075-B	1740	10	75	10	350
NB-1750-039-B	1750	10	39	5	350
NB-1765-010-B	1765	5	10	3	350
NB-1770-039-B	1770	10	39	5	350
BP-1775-100-B	1775	15	100	15	350
NB-1780-010-B	1780	5	10	3	350
NB-1800-040-B	1800	20	40	7	350
BP-1800-100-B	1800	10	100	15	350
BP-1805-075-B	1805	10	75	10	350
NB-1810-010-B	1810	5	10	3	350
NB-1810-045-B	1810	5	45	5	350
NB-1820-010-B	1820	5	10	3	350
BP-1820-080-B	1820	10	80	10	350
BP-1820-100-B	1820	10	100	10	350
BP-1830-085-B	1830	10	85	15	350
BP-1835-065-B	1835	10	65	10	350
BP-1835-100-B	1835	10	100	10	350
BP-1840-115-B	1840	10	115	10	350
NB-1840-037-B	1840	10	37	7	350
BP-1865-080-B	1865	10	80	10	350
BP-1865-100-B	1865	10	100	15	350
NB-1880-041-B	1880	10	41	7	350
BP-1880-100-B	1880	10	100	15	350
BP-1890-055-B	1890	10	55	10	350
BP-1890-100-B	1890	10	100	15	350
NB-1900-040-B	1900	10	40	7	350
NB-1900-050-B	1900	10	50	10	350
BP-1900-065-B	1900	10	65	10	350
BP-1900-100-B	1900	10	100	15	350
BP-1900-200-B	1900	10	200	20	350
NB-1915-060-B	1915	10	60	10	350
BP-1915-100-B	1915	10	100	15	350
NB-1920-042-B	1920	10	42	10	350
BP-1925-100-B	1925	10	100	15	350
NB-1930-010-B	1930	5	10	3	350
BP-1930-055-B	1930	10	55	7	350
BP-1930-070-B	1930	10	70	10	350
BP-1930-090-B	1930	10	90	15	350
NB-1935-020-B	1935	10	20	5	350
NB-1935-040-B	1935	10	40	7	350
BP-1935-110-B	1935	10	110	10	350
NB-1940-010-B	1940	5	10	2	350
NB-1940-030-B	1940	10	30	5	350
BP-1940-085-B	1940	10	85	10	350
BP-1940-100-B	1940	10	100	10	350
NB-1950-020-B	1950	10	20	5	350

Catalog No.	CWL nm	± Tol nm	HW nm	± Tol nm	Price	Catalog No.	CWL nm	± Tol nm	HW nm	± Tol nm	Price
NB-1960-043-B	1960	10	43	7	\$350	NB-3340-040-D	3340	20	40	10	\$390
BP-1960-110-B	1960	10	110	10	350	NB-3400-045-D	3400	20	45	10	390
BP-1960-130-B	1960	20	130	20	350	BP-3400-200-D	3400	45	200	35	390
NB-1965-020-B	1965	10	20	5	350	BP-3410-100-C	3410	20	100	15	390
NB-1970-043-B	1970	10	43	7	350	NB-3420-041-D	3420	10	41	7	390
BP-1970-105-B	1970	10	105	15	350	BP-3420-250-D	3420	35	250	25	390
BP-1990-105-B	1990	10	105	15	350	NB-3430-070-D	3430	15	70	10	390
NB-2000-020-B	2000	10	20	5	350	NB-3435-040-D	3435	10	40	7	390
BP-2015-105-B	2015	10	105	15	350	BP-3450-085-D	3450	10	85	25	390
BP-2040-090-B	2040	10	90	10	350	NB-3455-045-D	3455	10	45	10	390
NB-2060-040-B	2060	10	40	7	350	NB-3455-070-D	3455	15	70	10	390
NB-2080-040-B	2080	10	40	7	350	NB-3465-045-D	3465	10	45	10	390
BP-2080-090-B	2080	10	90	10	350	NB-3470-070-D	3470	10	70	10	390
NB-2100-010-B	2100	5	10	2	350	NB-3480-040-D	3480	10	40	10	390
NB-2100-046-B	2100	10	46	7	350	BP-3485-085-D	3485	10	85	10	390
BP-2100-095-B	2100	10	95	15	350	NB-3490-040-D	3490	10	40	10	390
BP-2110-065-B	2110	10	65	10	350	NB-3490-070-D	3490	10	70	10	390
NB-2120-020-B	2120	5	20	5	350	NB-3500-040-D	3500	10	40	10	390
BP-2120-085-B	2120	10	85	15	350	NB-3520-040-D	3520	10	40	10	390
NB-2140-050-B	2140	20	50	10	350	NB-3540-045-D	3540	10	45	10	390
BP-2145-065-B	2145	10	65	10	350	NB-3560-045-D	3560	10	45	10	390
BP-2145-200-B	2145	15	200	20	350	BP-3590-100-D	3590	45	100	25	390
NB-2160-030-B	2160	20	30	10	350	NB-3600-045-D	3600	20	45	10	390
NB-2170-050-B	2170	20	50	10	350	NB-3640-045-D	3640	10	45	10	390
NB-2180-010-B	2180	5	10	2	350	BP-3640-165-D	3640	20	165	25	390
NB-2180-045-B	2180	10	45	10	350	NB-3730-015-D	3730	7	15	5	390
BP-2180-100-B	2180	20	100	20	350	BP-3800-190-D	3800	50	190	20	390
NB-2190-010-B	2190	5	10	3	350	BP-3850-175-D	3850	25	175	15	390
NB-2200-049-B	2200	10	49	7	350	BP-3860-185-C	3860	25	185	20	390
BP-2200-100-B	2200	15	100	20	350	NB-3910-017-D	3910	10	17	5	390
NB-2220-010-B	2220	5	10	3	350	BP-3950-100-D	3950	50	100	20	390
NB-2225-045-B	2225	10	45	7	350	NB-3975-110-D	3975	20	110	15	390
NB-2230-010-B	2230	5	10	2	350	BP-4000-120-D	4000	15	120	10	500
NB-2275-045-B	2275	10	45	7	350	BP-4050-160-D	4050	25	160	20	500
BP-2290-075-B	2290	10	75	10	350	NB-4180-050-D	4180	20	50	10	500
NB-2300-045-B	2300	10	45	7	350	BP-4225-190-D	4225	20	190	20	500
NB-2310-010-B	2310	5	10	2	350	BP-4240-200-D	4240	25	200	20	500
NB-2350-052-B	2350	15	52	7	350	NB-4250-060-D	4250	15	60	10	500
BP-2350-110-B	2350	15	110	20	350	NB-4270-085-D	4270	25	85	10	500
BP-2360-085-B	2360	10	85	15	350	BP-4280-215-D	4280	30	215	25	500
BP-2365-070-B	2365	10	70	10	350	BP-4300-200-D	4300	43	200	25	500
NB-2380-052-B	2380	10	52	10	350	BP-4350-180-D	4350	50	180	50	500
BP-2380-100-B	2380	15	100	20	350	NB-4410-090-D	4410	25	90	15	500
NB-2395-053-B	2395	10	53	7	350	NB-4500-075-C	4500	15	75	15	500
BP-2400-105-B	2400	20	105	15	350	NB-4540-075-C	4540	20	75	15	500
NB-2420-050-B	2420	20	50	10	350	NB-4580-075-C	4580	15	75	15	500
NB-2470-050-B	2470	25	50	10	350	BP-4600-165-D	4600	20	165	20	500
BP-2470-070-B	2470	20	70	10	350	BP-4650-200-D	4650	50	200	25	500
NB-2580-050-D	2580	25	50	10	390	BP-4675-140-D	4675	25	140	25	500
BP-2610-120-D	2610	20	120	20	390	BP-4675-200-D	4675	50	200	25	500
BP-2635-120-D	2635	10	120	20	390	NB-4700-080-D	4700	15	80	10	500
NB-2690-050-D	2690	20	50	15	390	BP-4700-220-D	4700	25	220	25	500
NB-2700-010-D	2700	5	10	3	390	NB-4735-100-E	4735	30	100	15	500
NB-2730-050-D	2730	20	50	10	390	BP-4770-165-D	4770	50	165	25	500
BP-2790-230-D	2790	20	230	35	390	NB-4775-100-D	4775	15	100	15	500
NB-2810-053-D	2810	50	53	10	390	NB-5200-115-D	5200	55	115	20	550
BP-2850-130-D	2850	20	130	20	390	BP-5250-270-D	5250	50	270	30	550
NB-2925-055-D	2925	15	55	10	390	NB-5270-125-D	5270	25	125	15	550
NB-2950-055-D	2950	10	55	10	390	NB-5300-120-D	5300	25	120	15	550
NB-2970-055-D	2970	10	55	10	390	BP-5300-175-D	5300	50	175	20	550
NB-3030-065-D	3030	25	65	25	390	BP-5320-245-D	5320	30	245	25	550
NB-3060-060-D	3060	20	60	10	390	BP-5360-275-D	5360	30	275	25	550
NB-3090-055-D	3090	15	55	15	390	NB-5500-080-D	5500	50	80	20	550
BP-3115-140-D	3115	20	140	20	390	BP-5500-275-D	5500	50	275	50	550
NB-3140-060-D	3140	10	60	10	390	NB-5580-080-D	5580	30	80	20	550
BP-3150-115-D	3150	15	115	15	390	NB-5710-090-D	5710	20	90	20	550
NB-3160-060-D	3160	10	60	10	390	NB-5750-080-D	5750	40	80	15	550
NB-3175-060-D	3175	20	60	10	390	NB-5820-095-E	5820	25	95	20	550
BP-3180-100-D	3180	10	100	20	390	NB-5950-140-E	5950	25	140	25	550
NB-3210-065-D	3210	10	65	10	390	NB-6100-140-E	6100	30	140	25	550
BP-3210-090-D	3210	20	90	15	390	NB-6450-100-E	6450	50	100	20	550
NB-3300-060-D	3300	25	60	10	390	NB-6500-100-E	6500	50	100	25	550
BP-3330-145-D	3330	25	145	20	390	NB-6600-100-E	6600	25	100	25	550

Catalog No.	CWL nm	± Tol nm	HW nm	± Tol nm	Price
NB-6650-100-E	6650	35	100	25	\$550
NB-6700-080-E	6700	30	80	20	550
NB-6700-100-E	6700	50	100	25	550
NB-7200-105-E	7200	50	105	20	750
NB-7350-125-E	7350	30	125	25	750
NB-7600-150-E	7600	60	150	30	750
NB-7680-100-E	7680	25	100	20	750
NB-7700-175-E	7700	80	175	30	750
NB-7800-170-E	7800	100	170	40	750
NB-9400-220-E	9400	50	220	40	750
NB-9500-220-E	9500	80	220	40	750
NB-9650-230-E	9650	80	230	40	750

SHORTWAVE-PASSFILTERS



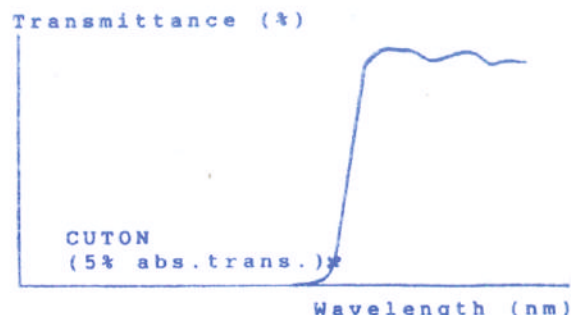
- Size: Diameter 25.4 + 0/- 0.2 mm
- Transmittance: Average > 60% through T-range to last peak
- Blocking avg. 0.1% above passband through blocked region. Some filters can be additionally blocked, please inquire
- Slope: 3-5% — defined as:

$$\% \text{ Slope} = \frac{\lambda (80\% \text{ of peak}) - \lambda_c}{\lambda_c} \cdot 100$$

- Transmission curve: supplied with each filter type

Catalog No.	Cutoff nm	± Tol nm	T-range nm	Blocked nm	Price
SP-1000-S	1000	25	800	1450	\$300
SP-1125-S	1125	30	875	1650	300
SP-1300-S	1300	30	875	1950	350
SP-1400-S	1400	30	850	2000	350
SP-1900-S	1900	30	1500	2600	350
SP-2000-F	2000	30	1150	Far IR	350
SP-2150-F	2150	30	1500	Far IR	350
SP-2300-F	2300	30	1400	Far IR	350
SP-2550-S	2550	50	1500	Far IR	400
SP-2900-S	2900	100	1700	Far IR	400
SP-3000-F	3000	100	1700	Far IR	400
SP-3500-F	3500	150	1900	Far IR	400
SP-4100-F	4100	150	2100	Far IR	500
SP-4500-F	4500	150	2700	Far IR	500
SP-5100-F	5100	150	2900	Far IR	500
SP-5600-F	5600	100	3700	Far IR	550
SP-5800-F	5800	200	3000	Far IR	550
SP-6000-F	6000	200	3000	Far IR	550
SP-7250-F	7250	200	5300	15000	750
SP-8750-F	8750	250	5300	14500	750
SP-11000-F	11000	250	6000	15500	750

LONGWAVE-PASSFILTERS



- Size: Diameter 25.4 + 0/- 0.2 mm
- Transmittance: Average > 75% from first peak through T-range
- Blocking avg. 0.1% below passband through UV
- Slope: 3-5% -defined as:

$$\% \text{ Slope} = \frac{\lambda (80\% \text{ of peak}) - \lambda_c}{\lambda_c} \cdot 100$$

- Transmission curve: supplied with each filter type

Catalog No.	Cuton nm	± Tol nm	T-range nm	Price
LP-0750-S	750	25	2500	\$300
LP-0800-S	800	25	2500	300
LP-0850-S	850	25	2500	300
LP-0900-S	900	25	2500	300
LP-0950-S	950	25	2500	300
LP-1000-S	1000	25	2500	300
LP-1100-S	1100	25	2500	300
LP-1200-S	1200	30	2500	350
LP-1300-S	1300	30	2500	350
LP-1400-S	1400	30	2800	350
LP-1500-F	1500	30	2500	350
LP-1600-F	1600	30	2500	350
LP-1700-S	1700	35	2500	350
LP-1850-F	1850	50	2500	350
LP-1900-S	1900	35	2900	350
LP-2000-S	2000	100	2500	350
LP-2500-F	2500	100	5000	400
LP-3000-F	3000	100	6000	400
LP-3250-S	3250	100	7000	400
LP-3500-F	3500	150	7000	400
LP-4000-F	4000	150	7000	500
LP-4350-F	4350	100	7000	500
LP-4500-F	4500	150	7000	500
LP-4750-F	4750	150	8000	500
LP-5000-F	5000	150	7500	500
LP-5250-F	5250	150	7500	500
LP-6000-F	6000	200	12000	550
LP-6500-F	6500	200	12500	550
LP-7000-F	7000	200	13000	750
LP-7400-F	7400	300	13000	750
LP-7800-F	7800	200	14000	750
LP-8000-F	8000	150	14000	750
LP-8400-F	8400	300	14000	750
LP-9000-F	9000	300	15000	750
LP-10000-F	10000	300	20000	750

Filters are available subject to prior sales
Please order by catalog number

For filters not listed please call our sales department.

INFRARED NEUTRAL DENSITY FILTERS

Substrate: CaF_2
Si/Ge/ZnSe

Diameter: 1.0" $\pm$.005"

Thickness: 1–3 mm

Part #	Optical Density	Transmittance %	Price
IRNDF-010	0.10	80.0	\$350
IRNDF-030	0.30	50.0	350
IRNDF-050	0.50	32.0	350
IRNDF-060	0.60	25.0	350
IRNDF-100	1.00	10.0	350
IRNDF-130	1.30	5.0	350
IRNDF-200	2.00	1.0	350
IRNDF-300	3.00	0.1	350

CaF_2 NDF are used for .4–8 microns range. Ge NDF are used in 2–14 microns range, Si NDF for 1–10 microns & ZnSe NDF for .4–18 microns range. Please specify substrate when ordering by letter designation after P# (GE, CF, ZS or Si)

BAND PASS FILTER FOR CO_2 LASER APPLICATIONS

CO_2 LASER LINE FILTER

Size: 25.4 mm diameter

Center Wavelength: $10.6 \mu\text{m} \pm 1\%$

Half Power Bandwidth: 2.2% of CW (.240 microns)

Transmission: > 60%

Blocking: Complete (< 0.1% T absolute from μv to $16.0 \mu\text{m}$)

Prices: Request

BEAM EXPANDERS/CONDENSERS

Specification: GALILEAN TYPE with minimum angular aberration design. This unit can be focused to produce a collimated beam or a point image.

Application: High power throughout where spatial filtering is not required to clean up the beam. Input lenses of ZnSe may be substituted where application requires higher input power.

Expansion	Material	Design Wavelength	Output Dia. 25.4 mm Part No.	Price	Output Dia. 38.1 mm Part No.	Price	Output Dia. 50.8 mm Part No.	Price
2X	QUARTZ	1.06 u	252x106-Q	\$975	382x106-Q	\$1000	502x106-Q	\$1075
5X			255x106-Q	1000	385x106-Q	1035	505x106-Q	1100
8X			258x106-Q	1000	388x106-Q	1050	508x106-Q	1100
10X			2510x106-Q	1000	3810x106-Q	1050	5010x106-Q	1100
15X			2515x106-Q	1030	3815x106-Q	1065	5015x106-Q	1125
20X			2520x106-Q	1035	3820x106-Q	1070	5020x106-Q	1130
2X	CaF ₂	3.39 u	252x339-CF	\$975	382x339-CF	\$1000	502x339-CF	\$1075
5X			255x339-CF	1000	385x339-CF	1035	505x339-CF	1100
8X			258x339-CF	1000	388x339-CF	1050	508x339-CF	1100
10X			2510x339-CF	1000	3810x339-CF	1050	5010x339-CF	1100
15X			2515x339-CF	1030	3815x339-CF	1065	5015x339-CF	1125
20X			2520x339-CF	1035	3820x339-CF	1070	5020x339-CF	1130
2X	BaF ₂	5.30 u	252x530-BF	\$1075	382x530-BF	\$1150	502x530-BF	\$1275
5X			255x530-BF	1100	385x530-BF	1185	505x530-BF	1300
8X			258x530-BF	1100	388x530-BF	1200	508x530-BF	1300
10X			2510x530-BF	1100	3810x530-BF	1200	5010x530-BF	1300
15X			2515x530-BF	1130	3815x530-BF	1215	5015x530-BF	1325
20X			2520x530-BF	1135	3820x530-BF	1220	5020x530-BF	1330
2X	Ge (A/R coated)	10.6 u	252x106-G	\$1180	382x106-G	\$1300	502x106-G	\$1480
5X			255x106-G	1200	385x106-G	1330	505x106-G	1520
8X			258x106-G	1220	388x106-G	1350	508x106-G	1530
10X			2510x106-G	1220	3810x106-G	1350	5010x106-G	1530
15X			2515x106-G	1230	3815x106-G	1350	5015x106-G	1540
20X			2520x106-G	1240	3820x106-G	1360	5020x106-G	1550
2X	ZnSe (A/R coated)	10.6 u	252x106-ZS	\$1695	382x106-ZS	\$1835	502x106-ZS	\$2275
5X			255x106-ZS	1750	385x106-ZS	1900	505x106-ZS	2325
8X			258x106-ZS	1780	388x106-ZS	1925	508x106-ZS	2350
10X			2510x106-ZS	1790	3810x106-ZS	1930	5010x106-ZS	2375
15X			2515x106-ZS	1840	3815x106-ZS	1970	5015x106-ZS	2400
20X			2520x106-ZS	1850	3820x106-ZS	1980	5020x106-ZS	2435

DOMES — HEMISPHERICAL

Specification
Radius $\pm .001"$
Thickness $\pm .001"$

Radius (inch)	Thickness (inch)	Ge Part No.	Prices	Si Part No.	Price	ZnSe Part No.	Price	KRS-5 Part No.	Price
.060	.060	060-GDH	O	060-SDH	O	060-ZSDH	O	060-KRSDH	O
.100	.100	100-GDH	N	100-SDH	N	100-ZSDH	N	100-KRSDH	N
.140	.140	140-GDH		140-SDH		140-ZSDH		140-KRSDH	
.200	.200	200-GDH	R	200-SDH	R	200-ZSDH	R	200-KRSDH	R
.394	.394	394-GDH	E	394-SDH	E	394-ZSDH	E	394-KRSDH	E
.500	.500	500-GDH	Q	500-SDH	Q	500-ZSDH	Q	500-KRSDH	Q
			U		U				U
			E		E				E
			S		S				S
			T		T				T

LENS SYSTEMS

ANGULAR RESOLUTION

Clear Aperture (mm)	F#	Effective F/L (mm)	Back Focal Length (mm)	Total Field of View (Degrees)	On axis (mr)	Half field (mr)	Full Field (mr)	Design Wave-length (microns)	Wave-length Range (microns)	Material	Part No.	Pri
12.50	1	12.70	9.42	2	DL	DL	DL	10.6	8-14	Ge-Ge	121106-GG	
12.50	2	25.40	19.12	2	DL	DL	DL	10.6	8-14	Ge-Ge	122106-GG	
12.50	2.5	31.75	29.41	2	DL	DL	DL	10.6	8-14	Ge-Ge	1225106-GG	
12.50	3	38.10	37.69	2	DL	DL	DL	10.6	8-14	Ge-Ge	123106-GG	O
12.50	4	50.80	48.11	2	DL	DL	DL	10.6	8-14	Ge-Ge	124106-GG	N
18.70	1	19.05	15.75	5	.45	2.5	4.0	4.3	3.4-5.3	Si-Ge	18143-SG	R
18.70	1	19.05	15.84	2	DL	DL	DL	10.6	8-14	Ge-Ge	181106-GG	E
25.00	1	25.40	20.32	5	DL	.75	1.6	10.6	8-14	Ge-Ge	251106-GG	Q
37.50	3	114.30	106.00	2	1.1	1.3	1.5	3.4	3-4	CaF ₂ -CaF ₂	37334-CC	U
50.00	1.8	91.44	76.20	2	DL	DL	DL	4.3	3.1-5.1	Si-Ge	501843-SG	E
75.00	1.2	91.44	73.35	5	.15	1.5	2.3	3.4	2.7-5.3	Si-Ge	751234-SG	S
75.00	3.3	251.46	233.27	3.5	.25	.5	.75	2.7	.91-4	CaF ₂ -CaF ₂	753327-CC	T
100.00	1.2	121.92	106.88	5	.40	.65	2.30	4.3	3.4-5.5	Si-Ge	1001243-SG	
100.00	1.2	121.92	106.63	5	.35	.5	2.25	10.6	8-14	Ge-Ge	10012106-GG	
100.00	3	304.80	229.72	2	DL	DL	DL	10.6	8-14	Ge-Ge	1003106-GG	

DOMES — HYPERHEMISPHERICAL

Specifications
 Radius $\pm .001"$
 Thickness $\pm .001"$

Radius (inch)	Thickness (inch)	Ge Part No.	Price	Si Part No.	Price	ZnSe Part No.	Price	KRS-5 Part No.	Price
.060	S	060-GDHH	O	060-SDHH	O	060-ZSHH	O	060-KRSDHH	O
.100	P	100-GDHH	N	100-SDHH	N	100ZSHH	N	100-KRSDHH	N
.140	E	140-GDHH		140-SDHH		140ZSHH		140-KRSDHH	
.200	C	200-GDHH	R	200-SDHH	R	200ZSHH	R	200-KRSDHH	R
.394	I	394-GDHH	E	394-SDHH	E	394ZSHH	E	394-KRSDHH	E
.500	F	500-GDHH	Q	500-SDHH	Q	500-ZSHH	Q	500-KRSDHH	Q
	Y		U		U		U		U
			E		E		E		E
			S		S		S		S
			T		T		T		T

CONTENTS

	Page
General Information.....	Inside Front Page
Useful Material Information	
Physical & Optical Properties of Materials.....	1, 2
Transmission Curves.....	1, 2
Lenses (Spherical) Positive & Negative	
Arsenic Trisulphide (As_2S_3).....	7
Barium Fluoride (BAF_2).....	11, 12, 18, 24
Calcium Fluoride (CAF_2).....	13, 19, 24
Fused Silica, Fused Quartz (SiO_2).....	14, 20, 21, 24
Gallium Arsenid ($GaAs$).....	8, 17
Germanium (Ge).....	4, 10, 16, 34
Lithium Fluoride (LiF).....	22
Magnesium Fluoride (MgF_2).....	23
Silicon (Si).....	6
Thallium Bromoiodide (KRS-5).....	5
Zinc Selenide ($ZnSe$).....	3, 10, 15, 34
Zinc Sulfide (ZnS).....	9
Lenses	
Cylindrical.....	25, 26
Windows	
Circular.....	27, 28, 29, 30
Brewster.....	31
Reflectors	
Plano Partial Reflectors.....	32
Concave Partial Reflectors.....	33
Mirror & Partial Reflector Substrate.....	34
Domes	
Hemispherical.....	39
Hyperhemispherical.....	40
Beam Expander	
Laser Beam Expanders/Condensers.....	39
Lens Systems	
Refractive.....	40
Filters (Infrared)	
Band Pass.....	35, 36
Short Pass.....	37
Long Pass.....	37
Neutral Density Filter.....	38
Co_2 Laser Line Filter.....	38



INFRARED OPTICAL PRODUCTS

19 EQUESTRIAN COURT
HUNTINGTON, NY 11743

Telephone : 631-805-9055

E-mail : iroptical@aol.com

Website : infraredopticalproducts.com