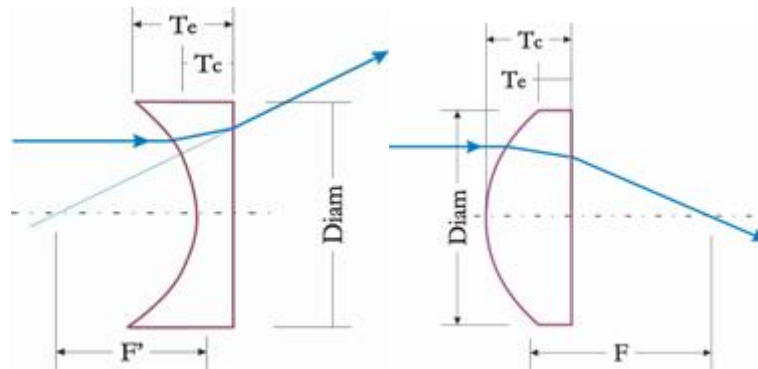


1. General Optics

1.1. Lenses

1.1.1. Plano-Convex/Concave Lenses



These simplest positive or negative focus length lenses have flat surface on one side and spherical surface on the other. They are used to focusing light beam in telescopes, collimators or condenser systems, optical transceivers or other applications. We provide lenses up to 250 mm diameter. Under customers request lenses are anti-reflection coated.

Standard specifications

Material: BK7, FS, UVFS, CaF2, ZnSe
Diameter Tolerance +0.0, -0.15mm
Focal Length $\pm 3\%$
Centration <3 arc minutes
Clear Aperture >90%
Surface Figure L/4@632.8nm
Surface Quality 40-20 scratch & dig

Diameter	Focal Length
0.5"	25-10000mm
1"	30-10000mm
1.5"	50-10000mm
2"	80-10000mm
3"	100-10000mm

When Ordering please specify

Type: Plano/Convex or Plano/Concave
Focal length in mm
AR Coatings: Broadband, Laser Line, Specific coating for wavelength range or Uncoated

1.1.1.1. BK7 Plano-Convex/Concave Lenses

Code	Name	Type	Material	Diameter (inches)	Focal length	Coating	Price (5-10pcs)	Price (11-20pcs)	Price (21-50pcs)	Price (>50pcs)	Currency
LE1	Lens	PCX/PCV	BK7	0.5	25-1500mm	LLAR	10,800	9,000	7,500	5,700	JPY
LE5	Lens	PCX/PCV	BK7	1	200-10000mm	LLAR	11,400	9,600	8,100	6,600	JPY
LE2	Lens	PCX/PCV	BK7	1	30mm	LLAR	156,00	13,200	11,100	8,100	JPY
LE3	Lens	PCX/PCV	BK7	1	40mm	LLAR	12,600	10,800	8,700	7,200	JPY
LE4	Lens	PCX/PCV	BK7	1	50-150mm	LLAR	12,000	10,200	8,700	6,900	JPY
LE8	Lens	PCX/PCV	BK7	1.5	100-500mm	LLAR	17,700	15,000	12,600	9,900	JPY
LE6	Lens	PCX/PCV	BK7	1.5	50mm	LLAR	22,200	18,900	15,600	12,300	JPY
LE89	Lens	PCX/PCV	BK7	1.5	700-5000mm	LLAR	17,400	14,700	12,000	9,600	JPY
LE7	Lens	PCX/PCV	BK7	1.5	75mm	LLAR	20,100	17,400	13,800	10,800	JPY
LE9	Lens	PCX/PCV	BK7	2	100mm	LLAR	29,400	26,700	20,700	18,000	JPY
LE90	Lens	PCX/PCV	BK7	2	200-10000mm	LLAR	27,600	24,600	19,500	17,400	JPY

1.1.1.2. FS Plano-Convex/Concave Lenses

Code	Name	Type	Material	Diameter (inches)	Focal length	Coating	Price (5-10pcs)	Price (11-20pcs)	Price (21-50pcs)	Price (>50pcs)	Currency
LE10	Lens	PCX/PCV	FS	0.5	25mm	LLAR	14,700	12,600	10,200	7,800	JPY
LE11	Lens	PCX/PCV	FS	1	30mm	LLAR	22,200	18,600	15,300	11,700	JPY
LE12	Lens	PCX/PCV	FS	1	40-10000mm	LLAR	19,500	16,200	13,200	10,200	JPY
LE13	Lens	PCX/PCV	FS	1.5	50mm	LLAR	29,700	24,900	20,400	15,600	JPY
LE14	Lens	PCX/PCV	FS	1.5	75-5000mm	LLAR	22,800	19,200	15,600	12,000	JPY
LE15	Lens	PCX/PCV	FS	2	100-10000mm	LLAR	29,700	24,900	20,400	15,600	JPY

1.1.1.3. UVFS Plano-Convex/Concave Lenses

Code	Name	Type	Material	Diameter (inches)	Focal length	Coating	Price (5-10pcs)	Price (11-20pcs)	Price (21-50pcs)	Price (>50pcs)	Currency
LE16	Lens	PCX/PCV	UVFS	0.5	25-1500mm	LLAR	17,700	15,000	12,300	9,300	JPY
LE17	Lens	PCX/PCV	UVFS	1	30mm	LLAR	26,700	22,500	18,300	14,100	JPY
LE18	Lens	PCX/PCV	UVFS	1	40-10000mm	LLAR	23,400	19,500	15,900	12,300	JPY
LE19	Lens	PCX/PCV	UVFS	1.5	50mm	LLAR	35,700	30,000	24,300	18,600	JPY
LE20	Lens	PCX/PCV	UVFS	1.5	75-5000mm	LLAR	27,300	23,100	18,600	14,400	JPY
LE21	Lens	PCX/PCV	UVFS	2	100-10000mm	LLAR	35,700	30,000	24,300	18,600	JPY

1.1.1.4. BK7 Plano-Convex/Concave STANDARD Lenses

Code	Name	Type	Material	Diameter (inches)	Focal length	Coating	Price (1-2 pcs)	Price (3-4pcs)	Currency
LE1S	Lens	PCV	BK7	1	25mm	no	11,400	10,800	JPY
LE2S	Lens	PCV	BK7	1	35mm	no	10,500	9,600	JPY
LE3S	Lens	PCX/PCV	BK7	1	50mm	no	10,200	8,700	JPY
LE4S	Lens	PCX/PCV	BK7	1	60mm	no	10,200	8,700	JPY
LE5S	Lens	PCX/PCV	BK7	1	75mm	no	10,200	8,700	JPY
LE6S	Lens	PCX/PCV	BK7	1	100mm	no	10,200	8,700	JPY
LE7S	Lens	PCX/PCV	BK7	1	125mm	no	10,200	8,700	JPY
LE8S	Lens	PCX/PCV	BK7	1	150mm	no	10,200	8,700	JPY
LE9S	Lens	PCX/PCV	BK7	1	200mm	no	10,200	8,700	JPY
LE10S	Lens	PCX/PCV	BK7	1	250mm	no	10,200	8,700	JPY
LE11S	Lens	PCX/PCV	BK7	1	300mm	no	10,200	8,700	JPY
LE12S	Lens	PCX/PCV	BK7	1	500mm	no	10,200	8,700	JPY
LE13S	Lens	PCX/PCV	BK7	1	750mm	no	10,200	8,700	JPY
LE14S	Lens	PCX/PCV	BK7	1	1000mm	no	10,200	8,700	JPY

1.1.1.5. UVFS Plano-Convex/Concave STANDARD Lenses

Code	Name	Type	Material	Diameter (inches)	Focal length	Coating	Price (1-2 pcs)	Price (3-4pcs)	Currency
LE21S	Lens	PCX/PCV	UVFS	1	50mm	no	17,400	13,800	JPY
LE22S	Lens	PCX/PCV	UVFS	1	60mm	no	17,400	13,800	JPY
LE23S	Lens	PCX/PCV	UVFS	1	75mm	no	17,400	13,800	JPY
LE24S	Lens	PCX/PCV	UVFS	1	100mm	no	17,400	13,800	JPY
LE25S	Lens	PCX/PCV	UVFS	1	125mm	no	17,400	13,800	JPY
LE26S	Lens	PCX/PCV	UVFS	1	150mm	no	17,400	13,800	JPY
LE27S	Lens	PCX/PCV	UVFS	1	200mm	no	17,400	13,800	JPY
LE28S	Lens	PCX/PCV	UVFS	1	250mm	no	17,400	13,800	JPY
LE29S	Lens	PCX/PCV	UVFS	1	300mm	no	17,400	13,800	JPY
LE30S	Lens	PCX/PCV	UVFS	1	500mm	no	17,400	13,800	JPY
LE31S	Lens	PCX/PCV	UVFS	1	750mm	no	17,400	13,800	JPY
LE31S	Lens	PCX/PCV	UVFS	1	1000mm	no	17,400	13,800	JPY

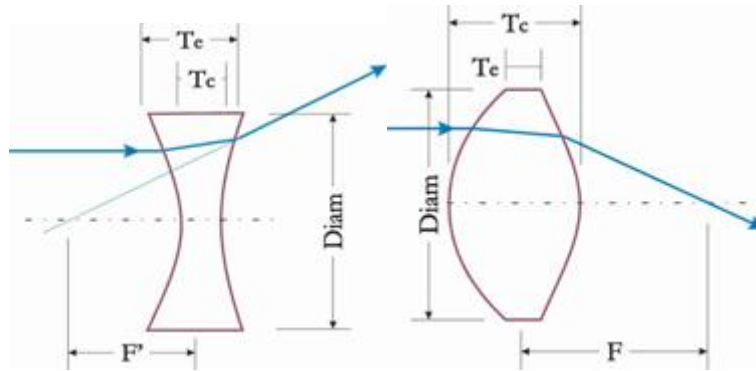
1.1.1.4. CaF2 Plano-Convex/Concave Lenses

Code	Name	Type	Material	Diameter (inches)	Focal length	Coating	Price (5-10pcs)	Price (11-20pcs)	Price (21-50pcs)	Price (>50pcs)	Currency
LE22	Lens	PCX/PCV	CaF2	0.5	25-500mm	no	22,200	19,200	16,500	13,800	JPY
LE23	Lens	PCX/PCV	CaF2	1	30mm	no	28,200	24,900	21,300	17,700	JPY
LE24	Lens	PCX/PCV	CaF2	1	50-500mm	no	24,900	21,900	18,600	15,600	JPY
LE25	Lens	PCX/PCV	CaF2	2	100mm	no	44,100	38,700	33,000	27,600	JPY
LE26	Lens	PCX/PCV	CaF2	2	200-1000mm	no	41,700	36,600	31,200	26,100	JPY

1.1.1.5. ZnSe Plano-Convex/Concave Lenses

Code	Name	Type	Material	Diameter (inches)	Focal length	Coating	Price (5-10pcs)	Price (11-20pcs)	Price (21-50pcs)	Price (>50pcs)	Currency
LE54	Lens	PCX/PCV	ZnSe	0.5	25-500mm	AR@10,6	29,100	21,600	16,200	10,800	JPY
LE91	Lens	PCX/PCV	ZnSe	1	40-500mm	AR@10,6	39,600	29,400	22,200	14,700	JPY
LE56	Lens	PCX/PCV	ZnSe	1.5	100-1000mm	AR@10,6	57,600	42,600	32,100	21,300	JPY
LE57	Lens	PCX/PCV	ZnSe	2	127mm	AR@10,6	82,500	61,200	45,900	30,600	JPY
LE58	Lens	PCX/PCV	ZnSe	2	200-1000mm	AR@10,6	79,500	58,800	44,100	29,400	JPY

1.1.2. Bi-Convex/Concave Lenses



Double convex or concave lenses are symmetrical, having equal radius on both sides.

The biconvex lenses are recommended for virtual imaging of real objects, and for positive conjugate ratios from 0.2 up to 5. Outside of this ratios range plano-convex lenses are usually more suitable. Biconvex lenses are used as magnifiers, objectives, some condensing systems. Since both surfaces contribute to the power of biconvex lenses, they have shorter focal lengths than PCX lenses of equal diameter and surface radius.

The biconcave lenses are often used to expand light beams or to increase focal lengths in optical systems, and are normally used in combination with other lenses. Among the many devices utilizing biconcave lenses are laser beam expanders, optical character readers, viewers and projection systems.

Standard specifications

Material: BK7, FS, UVFS, CaF2, ZnSe
 Diameter Tolerance +0.0, -0.15mm
 Focal Length $\pm 3\%$
 Centration <3 arc minutes
 Clear Aperture >90%
 Surface Figure L/4@632.8nm
 Surface Quality 40-20 scratch & dig

When Ordering please specify

Type: Bi/Convex or Bi/Concave
 Focal length in mm
 AR Coatings: Broadband, Laser Line, Specific coating for wavelength range or Uncoated
 Include 4LM13 Self-Centering Lens/Optics Mount or not include

We provide a lenses with a wide range of **Specific Coatings** under customers request !

1.1.2.1. BK7 Bi-Convex/Concave Lenses

Code	Name	Type	Material	Diameter (inches)	Focal length	Coating	Price (5-10pcs)	Price (11-20pcs)	Price (21-50pcs)	Price (>50pcs)	Currency
LE27	Lens	DCX/DCV	BK7	0.5	25-1500mm	LLAR	11,700	9,900	8,100	6,300	JPY
LE31	Lens	DCX/DCV	BK7	1	200-10000mm	LLAR	11,700	9,900	8,100	6,300	JPY
LE28	Lens	DCX/DCV	BK7	1	30mm	LLAR	16,200	13,800	11,100	8,700	JPY
LE29	Lens	DCX/DCV	BK7	1	40mm	LLAR	12,900	10,800	9,000	6,900	JPY
LE30	Lens	DCX/DCV	BK7	1	50-150mm	LLAR	12,300	10,500	8,400	6,600	JPY
LE34	Lens	DCX/DCV	BK7	1.5	100-5000mm	LLAR	18,900	15,900	12,900	9,900	JPY
LE32	Lens	DCX/DCV	BK7	1.5	50mm	LLAR	24,000	20,100	16,500	12,600	JPY
LE33	Lens	DCX/DCV	BK7	1.5	75mm	LLAR	20,700	17,400	14,100	10,800	JPY
LE35	Lens	DCX/DCV	BK7	2	100mm	LLAR	31,800	26,700	21,900	16,800	JPY
LE36	Lens	DCX/DCV	BK7	2	200-10000mm	LLAR	29,100	24,600	20,100	15,300	JPY

1.1.2.2. FS Bi-Convex/Concave Lenses

Code	Name	Type	Material	Diameter (inches)	Focal length	Coating	Price (5-10pcs)	Price (11-20pcs)	Price (21-50pcs)	Price (>50pcs)	Currency
LE37	Lens	Bi-Convex/Concave	FS	0.5	25-1500mm	LLAR	16,800	14,100	11,700	9,000	JPY
LE38	Lens	Bi-Convex/Concave	FS	1	30mm	LLAR	25,200	21,300	17,400	13,200	JPY
LE39	Lens	Bi-Convex/Concave	FS	1	40-10000mm	LLAR	22,200	18,600	15,000	11,700	JPY
LE40	Lens	Bi-Convex/Concave	FS	1.5	50mm	LLAR	33,900	28,500	23,100	17,700	JPY
LE41	Lens	Bi-Convex/Concave	FS	1.5	75-5000mm	LLAR	26,100	21,900	17,700	13,800	JPY
LE42	Lens	Bi-Convex/Concave	FS	2	100-10000mm	LLAR	33,900	28,500	23,100	17,700	JPY

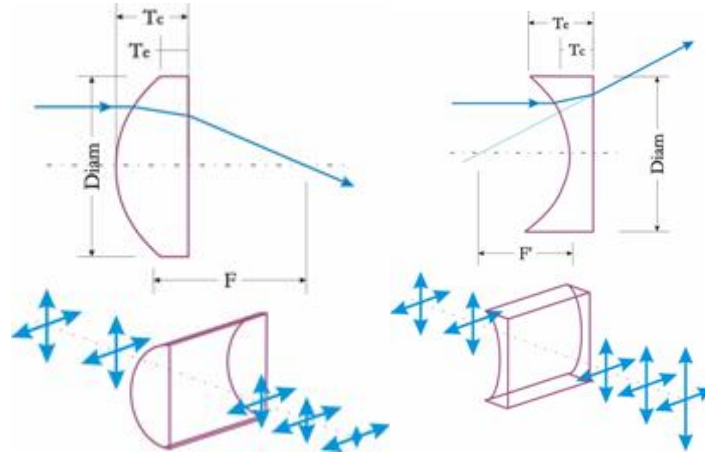
1.1.2.3. UVFS Bi-Convex/Concave Lenses

Code	Name	Type	Material	Diameter (inches)	Focal length	Coating	Price (5-10pcs)	Price (11-20pcs)	Price (21-50pcs)	Price (>50pcs)	Currency
LE43	Lens	Bi-Convex/Concave	UVFS	0.5	25-1500mm	LLAR	20,400	17,100	13,800	10,800	JPY
LE44	Lens	Bi-Convex/Concave	UVFS	1	30mm	LLAR	30,300	25,500	20,700	15,900	JPY
LE45	Lens	Bi-Convex/Concave	UVFS	1	40-10000mm	LLAR	26,400	22,200	18,000	14,100	JPY
LE46	Lens	Bi-Convex/Concave	UVFS	1.5	50mm	LLAR	40,500	34,200	27,600	21,300	JPY
LE47	Lens	Bi-Convex/Concave	UVFS	1.5	75-5000mm	LLAR	31,200	26,400	21,300	16,500	JPY
LE48	Lens	Bi-Convex/Concave	UVFS	2	100-10000mm	LLAR	40,500	34,200	27,600	21,300	JPY

1.1.2.4. CaF2 Bi-Convex/Concave Lenses

Code	Name	Type	Material	Diameter (inches)	Focal length	Coating	Price (5-10pcs)	Price (11-20pcs)	Price (21-50pcs)	Price (>50pcs)	Currency
LE49	Lens	Bi-Convex/Concave	CaF2	0.5	25-500mm	no	25,200	21,900	18,900	15,600	JPY
LE50	Lens	Bi-Convex/Concave	CaF2	1	30mm	no	32,400	28,200	24,300	20,100	JPY
LE51	Lens	Bi-Convex/Concave	CaF2	1	50-500mm	no	28,500	24,900	21,300	17,700	JPY
LE52	Lens	Bi-Convex/Concave	CaF2	2	100mm	no	50,400	44,100	37,800	31,500	JPY
LE53	Lens	Bi-Convex/Concave	CaF2	2	200-1000mm	no	47,700	41,700	35,700	29,700	JPY

1.1.3. Cylindrical Lenses



Cylindrical lenses condense or expand light in one dimension only.

Positive cylindrical lenses are used to focus light to a thin line for effective harmonic generation in nonlinear crystals, in laser scanners, spectroscopy, dye lasers, acousto-optics or other applications. They are the best for circularization of diode laser outputs, energy collection for linear detectors or for coupling to a slit input.

Negative focus length cylindrical lenses are used in laser scanners, spectroscopy, dye lasers, acousto-optics, optical processors or other applications. They are the best for circularization of diode laser outputs.

Standard specifications
Material: BK7, FS, UVFS, CaF2, ZnSe
Diameter Tolerance +0.0, -0.15mm
Focal Length $\pm 3\%$
Centration < 3 arc minutes
Clear Aperture $> 90\%$
Surface Figure L/4@632.8nm
Surface Quality 40-20 scratch & dig

Diameter	Focal Length
10x10mm	20-1000mm
20x40mm	30-2000mm

When Ordering please specify
Type: Plano/Convex or Concave
Focal length in mm
AR Coatings: Broadband, Laser Line, Specific coating for wavelength range or Uncoated

1.1.3.1. BK7 Cylindrical Lenses

Code	Name	Type	Material	Height (mm)	Width (mm)	Focal length	Coating	Price (5-10pcs)	Price (11-20pcs)	Price (21-50pcs)	Price (>50pcs)	Currency
CY88	Cylindrical Lens	CYL Plano-Convex/Concave	BK7	10	10	20-1000mm	LLAR	17,400	15,300	12,300	10,200	JPY
CY81	Cylindrical Lens	CYL Plano-Convex/Concave	BK7	20	20	100-1000mm	LLAR	21,900	19,500	15,600	12,900	JPY
CY82	Cylindrical Lens	CYL Plano-Convex/Concave	BK7	20	20	50mm	LLAR	23,100	20,400	16,200	13,500	JPY
CY83	Cylindrical Lens	CYL Plano-Convex/Concave	BK7	25	50	100-1000mm	LLAR	26,400	23,400	18,600	15,600	JPY
CY84	Cylindrical Lens	CYL Plano-Convex/Concave	BK7	25	50	50mm	LLAR	27,600	24,300	19,500	16,200	JPY
CY86	Cylindrical Lens	CYL Plano-Convex/Concave	BK7	30	30	100-1000mm	LLAR	24,600	21,600	17,400	14,400	JPY
CY85	Cylindrical Lens	CYL Plano-Convex/Concave	BK7	30	30	50mm	LLAR	27,600	24,300	19,500	16,200	JPY
CY87	Cylindrical Lens	CYL Plano-Convex/Concave	BK7	50	50	100-1000mm	LLAR	33,600	29,700	23,700	19,800	JPY

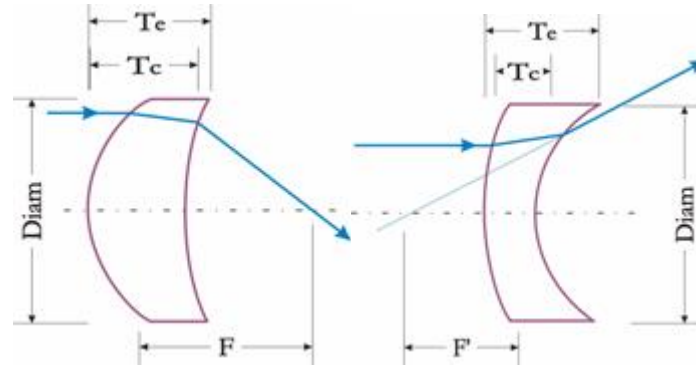
1.1.3.2. FS Cylindrical Lenses

Code	Name	Type	Material	Height (mm)	Width (mm)	Focal length	Coating	Price (5-10pcs)	Price (11-20pcs)	Price (21-50pcs)	Price (>50pcs)	Currency
CY64	Cylindrical Lens	CYL Plano-Convex/Concave	FS	10	10	20-1000mm	LLAR	20,700	18,300	14,700	12,300	JPY
CY66	Cylindrical Lens	CYL Plano-Convex/Concave	FS	20	20	100-1000mm	LLAR	26,400	23,100	18,600	15,600	JPY
CY65	Cylindrical Lens	CYL Plano-Convex/Concave	FS	20	20	50mm	LLAR	27,600	24,300	19,500	16,200	JPY
CY70	Cylindrical Lens	CYL Plano-Convex/Concave	FS	25	50	100-1000mm	LLAR	31,800	28,200	22,500	18,600	JPY
CY69	Cylindrical Lens	CYL Plano-Convex/Concave	FS	25	50	50mm	LLAR	33,000	29,100	23,400	19,500	JPY
CY68	Cylindrical Lens	CYL Plano-Convex/Concave	FS	30	30	100-1000mm	LLAR	29,400	25,800	20,700	17,400	JPY
CY67	Cylindrical Lens	CYL Plano-Convex/Concave	FS	30	30	50mm	LLAR	33,000	29,100	23,400	19,500	JPY
CY71	Cylindrical Lens	CYL Plano-Convex/Concave	FS	50	50	100-1000mm	LLAR	40,500	35,700	28,500	23,700	JPY

1.1.3.3. UVFS Cylindrical Lenses

Code	Name	Type	Material	Height (mm)	Width (mm)	Focal length	Coating	Price (5-10pcs)	Price (11-20pcs)	Price (21-50pcs)	Price (>50pcs)	Currency
CY72	Cylindrical Lens	CYL Plano-Convex/Concave	UVFS	10	10	20-1000mm	LLAR	22,200	19,500	15,600	13,200	JPY
CY74	Cylindrical Lens	CYL Plano-Convex/Concave	UVFS	20	20	100-1000mm	LLAR	28,200	24,900	19,800	16,500	JPY
CY73	Cylindrical Lens	CYL Plano-Convex/Concave	UVFS	20	20	50mm	LLAR	29,400	26,100	20,700	17,400	JPY
CY78	Cylindrical Lens	CYL Plano-Convex/Concave	UVFS	25	50	100-1000mm	LLAR	34,200	30,000	24,000	20,100	JPY
CY77	Cylindrical Lens	CYL Plano-Convex/Concave	UVFS	25	50	50mm	LLAR	35,400	31,200	24,900	20,700	JPY
CY76	Cylindrical Lens	CYL Plano-Convex/Concave	UVFS	30	30	100-1000mm	LLAR	31,500	27,600	22,200	18,600	JPY
CY75	Cylindrical Lens	CYL Plano-Convex/Concave	UVFS	30	30	50mm	LLAR	35,400	31,200	24,900	20,700	JPY
CY79	Cylindrical Lens	CYL Plano-Convex/Concave	UVFS	50	50	100-1000mm	LLAR	43,200	38,100	30,600	25,500	JPY

1.1.4. Meniscus Lenses



These positive or negative focus length lens have different radius on both sides.

Meniscus lenses are used in applications to reduce beam distortion. They are used to focussing light beam in telescopes, collimators or condenser systems, optical transceivers. They are also used to expand light beams or to increase focal lengths in optical systems or other applications.

Standard specifications
Material: BK7, FS, UVFS, CaF2, ZnSe
Diameter Tolerance +0.0, -0.15mm
Focal Length $\pm 3\%$
Centration <3 arc minutes
Clear Aperture >90%
Surface Figure L/4@632.8nm
Surface Quality 40-20 scratch & dig

When Ordering please specify
Type: Positive or Negative
Focal length in mm
AR Coatings: Broadband, Laser Line, Specific coating for wavelength range or Uncoated

1.1.4.1. ZnSe Meniscus Lenses

Code	Name	Type	Material	Diameter (inches)	Focal length	Coating	Price (5-10pcs)	Price (11-20pcs)	Price (21-50pcs)	Price (>50pcs)	Currency
LE59	Lens	Meniscus	ZnSe	0.5	25-500mm	AR@10,6	77,700	57,600	43,200	28,800	JPY
LE60	Lens	Meniscus	ZnSe	1	40-500mm	AR@10,6	88,200	65,400	49,200	32,700	JPY
LE61	Lens	Meniscus	ZnSe	1.5	100-1000mm	AR@10,6	106,200	78,600	59,100	39,300	JPY
LE62	Lens	Meniscus	ZnSe	2	127mm	AR@10,6	131,100	97,200	72,900	48,600	JPY
LE63	Lens	Meniscus	ZnSe	2	200-1000mm	AR@10,6	128,100	94,800	71,100	47,400	JPY