

# Lenses

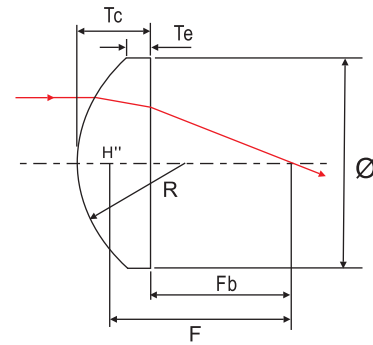
## Manufacturing Capability of Lenses

Materials	Optical glass (Schott Glass, CDGM Glass, Ohara Glass)
Focal length(F)	$\pm 2\text{mm}$ ----- $\pm 5000\text{mm}$
Diameter( $\varnothing$ )	$\varnothing 1.0\text{mm}$ ----- $\varnothing 300\text{mm}$
Radius(R)	$\pm 0.5\text{mm}$ --- -- $\pm 5000\text{mm}$
Central Thickness(Tc)	0.3mm-----50mm
Edge Thickness(Te)	0.5mm-----50mm
Surface quality	10-5S/D
Flatness(Irregularity)	IRR=0.2 ( $\lambda/10$ )
Centration	30 arcsec



## Plano-Convex Lenses (N-BK7)

Diameter tolerance:  $\pm 0.1\text{mm}$   
 Thickness tolerance:  $\pm 0.1\text{mm}$   
 Focal length tolerance:  $\pm 1\%$   
 Design wavelength: 588nm  
 Surface quality: 40-20 S/D  
 Flatness:  $\lambda/4$  @633nm  
 Centration: 3-5 arcmin  
 Clear aperture: 90%



Item#	Diameter	Focal	Material	R	Tc	Te	Fb
LP01-3-4	Ø3.0	4.0	N-BK7	2.07	2.14	1.5	2.59
LP01-3-5	Ø3.0	5.0	N-BK7	2.59	2.00	1.5	3.69
LP01-3-6	Ø3.0	6.0	N-BK7	3.10	1.79	1.4	4.81
LP01-3-8	Ø3.0	8.0	N-BK7	4.13	1.49	1.2	7.00
LP01-3-10	Ø3.0	10.0	N-BK7	5.17	1.22	1.0	9.20
LP01-4-6	Ø4.0	6.0	N-BK7	3.10	2.23	1.5	4.53
LP01-4-8	Ø4.0	8.0	N-BK7	4.13	1.72	1.2	6.66
LP01-4-10	Ø4.0	10.0	N-BK7	5.17	1.60	1.2	8.73
LP01-4-12	Ø4.0	12.0	N-BK7	6.22	1.53	1.2	11.00
LP01-5-8	Ø5.0	8.0	N-BK7	4.13	2.04	1.2	6.65
LP01-5-10	Ø5.0	10.0	N-BK7	5.17	1.85	1.2	8.78
LP01-5-12	Ø5.0	12.0	N-BK7	6.22	1.72	1.2	10.90
LP01-5-15	Ø5.0	15.0	N-BK7	7.75	1.62	1.2	13.93
LP01-5-20	Ø5.0	20.0	N-BK7	10.34	1.50	1.2	19.02
LP01-6-10	Ø6.0	10.0	N-BK7	5.17	2.45	1.5	8.39
LP01-6-12	Ø6.0	12.0	N-BK7	6.20	2.27	1.5	10.50
LP01-6-15	Ø6.0	15.0	N-BK7	7.75	2.10	1.5	13.61
LP01-6-20	Ø6.0	20.0	N-BK7	10.34	1.95	1.5	18.72
LP01-6-25	Ø6.0	25.0	N-BK7	12.92	1.85	1.5	23.78
LP01-6-30	Ø6.0	30.0	N-BK7	15.5	1.80	1.5	28.80
LP01-6-40	Ø6.0	40.0	N-BK7	20.67	1.72	1.5	38.86
LP01-6-50	Ø6.0	50.0	N-BK7	25.84	1.68	1.5	48.89
LP01-10-12	Ø10.0	12.0	N-BK7	6.20	4.13	1.6	9.27
LP01-10-15	Ø10.0	15.0	N-BK7	7.75	3.44	1.6	12.73
LP01-10-20	Ø10.0	20.0	N-BK7	10.34	2.89	1.6	18.10
LP01-10-25	Ø10.0	25.0	N-BK7	12.92	2.60	1.6	23.35
LP01-10-30	Ø10.0	30.0	N-BK7	15.50	2.43	1.6	28.39
LP01-10-40	Ø10.0	40.0	N-BK7	20.67	2.21	1.6	38.54
LP01-12.7-15	Ø12.7	15.0	N-BK7	7.75	5.10	1.8	11.63
LP01-12.7-20	Ø12.7	20.0	N-BK7	10.34	3.98	1.8	17.38
LP01-12.7-25	Ø12.7	25.0	N-BK7	12.92	3.47	1.8	22.71
LP01-12.7-30	Ø12.7	30.0	N-BK7	15.50	3.16	1.8	27.91
LP01-12.7-40	Ø12.7	40.0	N-BK7	20.67	2.80	1.8	38.15
LP01-12.7-50	Ø12.7	50.0	N-BK7	25.84	2.60	1.8	48.29
LP01-12.7-75	Ø12.7	75.0	N-BK7	38.76	2.33	1.8	73.46
LP01-12.7-85	Ø12.7	85.0	N-BK7	43.93	2.26	1.8	83.51
LP01-12.7-100	Ø12.7	100.0	N-BK7	51.7	2.19	1.8	98.60

Price on request    Volume Discount    Custom Design



Notes:

- 1, The listed lenses are without coating, please contact us for coating.
- 2, Custom lenses are available upon request.

Item#	Diameter	Focal	Material	R	Tc	Te	Fb
LP01-15-25	Ø15.0	25.0	N-BK7	12.92	4.20	1.8	22.23
LP01-15-30	Ø15.0	30.0	N-BK7	15.5	3.74	1.8	27.53
LP01-15-40	Ø15.0	40.0	N-BK7	20.67	3.20	1.8	37.89
LP01-15-50	Ø15.0	50.0	N-BK7	25.84	2.91	1.8	48.08
LP01-15-75	Ø15.0	75.0	N-BK7	38.76	2.54	1.8	73.32
LP01-15-100	Ø15.0	100.0	N-BK7	51.7	2.35	1.8	98.49
LP01-18-25	Ø18.0	25.0	N-BK7	12.92	5.65	2.0	21.27
LP01-18-30	Ø18.0	30.0	N-BK7	15.5	4.89	2.0	26.77
LP01-18-50	Ø18.0	50.0	N-BK7	25.84	3.62	2.0	47.61
LP01-18-75	Ø18.0	75.0	N-BK7	38.76	3.05	2.0	72.99
LP01-18-100	Ø18.0	100.0	N-BK7	51.7	2.79	2.0	98.19
LP01-20-30	Ø20.0	30.0	N-BK7	15.5	5.65	2.0	26.26
LP01-20-40	Ø20.0	40.0	N-BK7	20.67	4.58	2.0	36.98
LP01-20-50	Ø20.0	50.0	N-BK7	25.84	4.02	2.0	47.35
LP01-20-75	Ø20.0	75.0	N-BK7	38.76	3.32	2.0	72.81
LP01-20-100	Ø20.0	100.0	N-BK7	51.7	2.98	2.0	98.07
LP01-25.4-35	Ø25.4	35.0	N-BK7	18.09	7.20	2.0	30.26
LP01-25.4-40	Ø25.4	40.0	N-BK7	20.67	6.36	2.0	35.80
LP01-25.4-50	Ø25.4	50.0	N-BK7	25.84	5.34	2.0	46.48
LP01-25.4-60	Ø25.4	60.0	N-BK7	31.00	4.72	2.0	56.87
LP01-25.4-75	Ø25.4	75.0	N-BK7	38.76	4.14	2.0	72.27
LP01-25.4-100	Ø25.4	100.0	N-BK7	51.7	3.58	2.0	97.67
LP01-25.4-125	Ø25.4	125.0	N-BK7	64.6	3.26	2.0	122.85
LP01-25.4-150	Ø25.4	150.0	N-BK7	77.52	3.05	2.0	147.99
LP01-25.4-200	Ø25.4	200.0	N-BK7	103.36	2.78	2.0	198.17
LP01-25.4-250	Ø25.4	250.0	N-BK7	129.2	2.63	2.0	248.26
LP01-25.4-300	Ø25.4	300.0	N-BK7	155.04	2.52	2.0	298.34
LP01-25.4-400	Ø25.4	400.0	N-BK7	206.7	2.40	2.0	398.38
LP01-25.4-500	Ø25.4	500.0	N-BK7	258.4	2.32	2.0	498.47
LP01-25.4-750	Ø25.4	750.0	N-BK7	387.6	2.20	2.0	748.55
LP01-25.4-1000	Ø25.4	1000.0	N-BK7	516.8	2.15	2.0	998.38
LP01-30-50	Ø30.0	50.0	N-BK7	25.84	7.30	2.5	45.18
LP01-30-75	Ø30.0	75.0	N-BK7	38.76	5.52	2.5	71.36
LP01-30-100	Ø30.0	100.0	N-BK7	51.70	4.73	2.5	96.88
LP01-30-150	Ø30.0	150.0	N-BK7	77.52	3.97	2.5	147.38
LP01-30-200	Ø30.0	200.0	N-BK7	103.36	3.60	2.5	197.96
LP01-30-250	Ø30.0	250.0	N-BK7	129.2	3.37	2.5	247.78

## Plano-Convex Lenses (N-BK7)

Item#	Diameter	Focal	Material	R	Tc	Te	Fb
LP01-30-300	Ø30.0	300	N-BK7	155.04	3.23	2.5	297.87
LP01-30-400	Ø30.0	400	N-BK7	206.7	3.04	2.5	397.96
LP01-30-500	Ø30.0	500	N-BK7	258.4	2.94	2.5	498.06
LP01-38-100	Ø38.0	100	N-BK7	51.7	6.12	2.5	96.00
LP01-38-125	Ø38.0	125	N-BK7	64.6	5.36	2.5	121.46
LP01-38-150	Ø38.0	150	N-BK7	77.52	4.87	2.5	146.78
LP01-38-200	Ø38.0	200	N-BK7	103.36	4.26	2.5	197.19
LP01-38-250	Ø38.0	250	N-BK7	129.2	3.91	2.5	247.42
LP01-38-300	Ø38.0	300	N-BK7	155.04	3.67	2.5	297.58
LP01-38-400	Ø38.0	400	N-BK7	206.7	3.38	2.5	397.77
LP01-38-500	Ø38.0	500	N-BK7	258.4	3.20	2.5	497.89
LP01-50.8-100	Ø50.8	100	N-BK7	51.7	9.67	3.0	93.66
LP01-50.8-125	Ø50.8	125	N-BK7	64.6	8.20	3.0	119.59
LP01-50.8-150	Ø50.8	150	N-BK7	77.52	7.28	3.0	145.20
LP01-50.8-200	Ø50.8	200	N-BK7	103.36	6.17	3.0	195.93
LP01-50.8-250	Ø50.8	250	N-BK7	129.2	5.53	3.0	246.35
LP01-50.8-300	Ø50.8	300	N-BK7	155.04	5.10	3.0	296.64
LP01-50.8-400	Ø50.8	400	N-BK7	206.7	4.56	3.0	396.96
LP01-50.8-500	Ø50.8	500	N-BK7	258.4	4.25	3.0	497.19
LP01-50.8-750	Ø50.8	750	N-BK7	387.6	3.83	3.0	747.47
LP01-50.8-1000	Ø50.8	1000	N-BK7	516.8	3.62	3.0	997.61
LP01-76.2-200	Ø76.2	200	N-BK7	103.36	11.28	4.0	192.56
LP01-76.2-300	Ø76.2	300	N-BK7	155.04	8.76	4.0	294.22
LP01-76.2-400	Ø76.2	400	N-BK7	206.7	7.54	4.0	394.99
LP01-76.2-500	Ø76.2	500	N-BK7	258.4	6.82	4.0	495.50
LP01-76.2-750	Ø76.2	750	N-BK7	387.6	5.88	4.0	746.12
LP01-76.2-1000	Ø76.2	1000	N-BK7	516.8	5.41	4.0	996.43



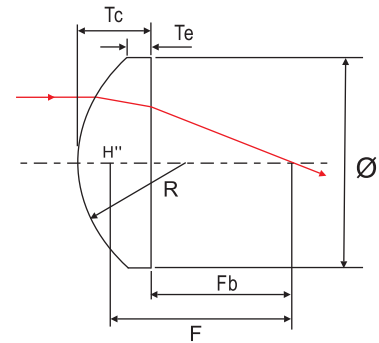
**Notes:**

- 1, The listed lenses are without coating, please contact us for coating.
- 2, Custom lenses are available upon request.

Price on request    Volume Discount    Custom Design

## Plano-Convex Lenses (UV Fused Silica )

Diameter tolerance:  $\pm 0.1\text{mm}$   
 Thickness tolerance:  $\pm 0.1\text{mm}$   
 Focal length tolerance:  $\pm 1\%$   
 Design wavelength: 588nm  
 Surface quality: 40-20 S/D  
 Flatness:  $\lambda/4$  @633nm  
 Centration: 3-5 arcmin  
 Clear aperture: 90%

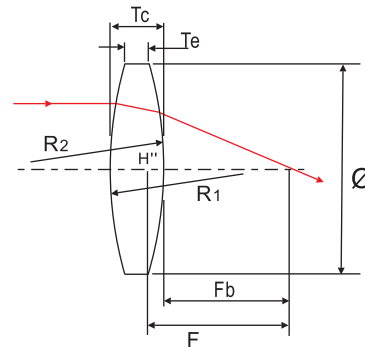


Item#	Diameter	Focal	Material	R	Tc	Te	Fb
LP02-6-10	Ø6.0	10.0	UV FS	4.6	2.61	1.5	8.21
LP02-6-12	Ø6.0	12.0	UV FS	5.52	2.39	1.5	10.36
LP02-6-15	Ø6.0	15.0	UV FS	6.90	2.19	1.5	13.50
LP02-6-20	Ø6.0	20.0	UV FS	9.20	2.00	1.5	18.63
LP02-6-25	Ø6.0	25.0	UV FS	11.50	1.90	1.5	23.70
LP02-6-30	Ø6.0	30.0	UV FS	13.80	1.83	1.5	28.75
LP02-12.7-20	Ø12.7	20.0	UV FS	9.20	4.34	1.8	17.03
LP02-12.7-25	Ø12.7	25.0	UV FS	11.50	3.91	1.8	22.32
LP02-12.7-30	Ø12.7	30.0	UV FS	13.80	3.35	1.8	27.70
LP02-12.7-40	Ø12.7	40.0	UV FS	18.40	2.93	1.8	37.99
LP02-12.7-50	Ø12.7	50.0	UV FS	23.0	2.70	1.8	48.15
LP02-12.7-60	Ø12.7	60.0	UV FS	27.6	2.54	1.8	58.26
LP02-12.7-75	Ø12.7	75.0	UV FS	34.5	2.39	1.8	73.36
LP02-12.7-100	Ø12.7	100.0	UV FS	46.0	2.24	1.8	98.46
LP02-18-30	Ø18.0	30.0	UV FS	13.8	5.34	2.0	26.34
LP02-18-40	Ø18.0	40.0	UV FS	18.4	4.35	2.0	37.02
LP02-18-50	Ø18.0	50.0	UV FS	23.0	3.84	2.0	47.37
LP02-18-75	Ø18.0	75.0	UV FS	34.5	3.20	2.0	72.81
LP02-18-100	Ø18.0	100.0	UV FS	46.0	2.90	2.0	98.01
LP02-18-125	Ø18.0	125.0	UV FS	57.5	2.70	2.0	123.15
LP02-18-150	Ø18.0	150.0	UV FS	69.0	2.60	2.0	148.22
LP02-25.4-35	Ø25.4	35.0	UV FS	16.1	8.20	2.0	29.38
LP02-25.4-40	Ø25.4	40.0	UV FS	18.4	7.08	2.0	35.15
LP02-25.4-50	Ø25.4	50.0	UV FS	23.0	5.84	2.0	46.00
LP02-25.4-60	Ø25.4	60.0	UV FS	27.6	5.10	2.0	56.51
LP02-25.4-75	Ø25.4	75.0	UV FS	34.5	4.43	2.0	71.97
LP02-25.4-100	Ø25.4	100.0	UV FS	46.0	3.80	2.0	97.40
LP02-25.4-125	Ø25.4	125.0	UV FS	57.5	3.42	2.0	122.66
LP02-25.4-150	Ø25.4	150.0	UV FS	69.0	3.18	2.0	147.82
LP02-25.4-200	Ø25.4	200.0	UV FS	92.0	2.88	2.0	198.02
LP02-25.4-250	Ø25.4	250.0	UV FS	115.0	2.70	2.0	248.15
LP02-25.4-300	Ø25.4	300.0	UV FS	138.0	2.59	2.0	298.22
LP02-25.4-400	Ø25.4	400.0	UV FS	184.0	2.44	2.0	398.33
LP02-25.4-500	Ø25.4	500.0	UV FS	230.0	2.30	2.0	498.39
LP02-25.4-750	Ø25.4	750.0	UV FS	345.0	2.23	2.0	748.47
LP02-25.4-1000	Ø25.4	1000.0	UV FS	460.0	2.17	2.0	998.81

## Bi-Convex Lenses

### Material: N-BK7

Diameter tolerance:  $\pm 0.1\text{mm}$   
 Thickness tolerance:  $\pm 0.1\text{mm}$   
 Focal length tolerance:  $\pm 1\%$   
 Design wavelength: 588nm  
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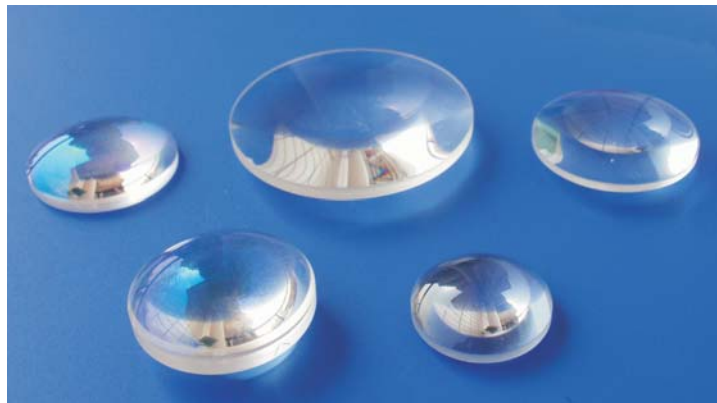


Item#	Diameter	Focal	Material	$R_1=-R_2$	$T_c$	$T_e$	$F_b$
LB01-3-5	Ø3.0	5.0	N-BK7	4.80	2.0	1.52	4.29
LB01-3-6	Ø3.0	6.0	N-BK7	5.84	2.0	1.61	5.30
LB01-3-9	Ø3.0	9.0	N-BK7	8.95	2.0	1.75	8.32
LB01-5-10	Ø5.0	10.0	N-BK7	9.98	2.0	1.36	9.31
LB01-5-15	Ø5.0	15.0	N-BK7	15.16	2.0	1.58	14.33
LB01-5-20	Ø5.0	20.0	N-BK7	20.32	2.0	1.69	19.32
LB01-5-25	Ø5.0	25.0	N-BK7	25.49	2.0	1.75	24.33
LB01-6-9	Ø6.0	9.0	N-BK7	8.84	2.55	1.50	8.11
LB01-6-12	Ø6.0	12.0	N-BK7	12.0	2.26	1.50	11.22
LB01-6-15	Ø6.0	15.0	N-BK7	15.15	2.10	1.50	14.30
LB01-6-18	Ø6.0	18.0	N-BK7	18.26	2.00	1.50	17.33
LB01-6-25	Ø6.0	25.0	N-BK7	25.52	1.86	1.50	24.38
LB01-6-30	Ø6.0	30.0	N-BK7	30.69	1.80	1.50	29.39
LB01-12.7-15	Ø12.7	15.0	N-BK7	14.65	4.7	1.80	13.35
LB01-12.7-20	Ø12.7	20.0	N-BK7	20.00	3.85	1.80	18.69
LB01-12.7-25	Ø12.7	25.0	N-BK7	25.24	3.43	1.80	23.84
LB01-12.7-30	Ø12.7	30.0	N-BK7	30.46	3.14	1.80	28.94
LB01-12.7-40	Ø12.7	40.0	N-BK7	40.86	2.80	1.80	39.06
LB01-12.7-50	Ø12.7	50.0	N-BK7	51.25	2.60	1.80	49.15
LB01-12.7-75	Ø12.7	75.0	N-BK7	77.12	2.33	1.80	74.22
LB01-12.7-100	Ø12.7	100.0	N-BK7	103.0	2.20	1.80	99.29
LB01-18-25	Ø18.0	25.0	N-BK7	24.90	5.37	2.00	23.17
LB01-18-30	Ø18.0	30.0	N-BK7	30.17	4.75	2.00	28.38
LB01-18-40	Ø18.0	40.0	N-BK7	40.65	4.02	2.00	38.66
LB01-18-50	Ø18.0	50.0	N-BK7	51.06	3.60	2.00	48.80
LB01-18-75	Ø18.0	75.0	N-BK7	77.00	3.06	2.00	73.99
LB01-18-100	Ø18.0	100.0	N-BK7	102.88	2.80	2.00	99.07
LB01-25.4-25	Ø25.4	25.0	N-BK7	24.16	9.21	2.00	21.75
LB01-25.4-30	Ø25.4	30.0	N-BK7	29.64	7.72	2.00	27.34
LB01-25.4-35	Ø25.4	35.0	N-BK7	34.98	6.78	2.00	32.69
LB01-25.4-40	Ø25.4	40.0	N-BK7	40.27	6.10	2.00	37.93
LB01-25.4-50	Ø25.4	50.0	N-BK7	50.77	5.23	2.00	48.24
LB01-25.4-60	Ø25.4	60.0	N-BK7	61.21	4.66	2.00	58.44
LB01-25.4-75	Ø25.4	75.0	N-BK7	76.81	4.12	2.00	73.63
LB01-25.4-100	Ø25.4	100.0	N-BK7	102.74	3.58	2.00	98.81

Item#	Diameter	Focal	Material	R <sub>1</sub> =-R <sub>2</sub>	Tc	Te	Fb
LB01-25.4-125	Ø25.4	125.0	N-BK7	128.65	3.26	2.00	123.93
LB01-25.4-150	Ø25.4	150.0	N-BK7	154.52	3.05	2.00	148.99
LB01-25.4-200	Ø25.4	200.0	N-BK7	206.30	2.78	2.00	199.13
LB01-25.4-250	Ø25.4	250.0	N-BK7	258.00	2.62	2.00	249.18
LB01-25.4-300	Ø25.4	300.0	N-BK7	309.70	2.52	2.00	299.22
LB01-25.4-400	Ø25.4	400.0	N-BK7	413.00	2.40	2.00	399.18
LB01-25.4-500	Ø25.4	500.0	N-BK7	516.50	2.31	2.00	499.33
LB01-30-50	Ø30.0	50.0	N-BK7	50.56	6.55	2.00	47.81
LB01-30-75	Ø30.0	75.0	N-BK7	76.67	4.96	2.00	73.35
LB01-30-100	Ø30.0	100.0	N-BK7	102.50	5.00	2.79	98.34
LB01-30-125	Ø30.0	125.0	N-BK7	128.34	5.00	3.24	123.34
LB01-30-150	Ø30.0	150.0	N-BK7	154.18	5.00	3.54	148.34
LB01-30-200	Ø30.0	200.0	N-BK7	205.86	5.00	3.90	198.34
LB01-30-250	Ø30.0	250.0	N-BK7	257.54	5.00	4.12	248.35
LB01-30-300	Ø30.0	300.0	N-BK7	309.22	5.00	4.27	398.35
LB01-30-500	Ø30.0	500.0	N-BK7	515.95	5.00	4.56	498.35
LB01-38-75	Ø38.0	75.0	N-BK7	76.34	6.80	2.00	72.72
LB01-38-100	Ø38.0	100.0	N-BK7	102.4	5.56	2.00	98.15
LB01-38-150	Ø38.0	150.0	N-BK7	154.18	5.00	2.65	148.34
LB01-38-200	Ø38.0	200.0	N-BK7	205.86	5.00	3.24	198.34
LB01-38-250	Ø38.0	250.0	N-BK7	257.54	5.00	3.59	248.34
LB01-38-300	Ø38.0	300.0	N-BK7	309.22	5.00	3.83	298.35
LB01-38-400	Ø38.0	400.0	N-BK7	412.58	5.00	4.12	398.35
LB01-38-500	Ø38.0	500.0	N-BK7	515.95	5.00	4.30	498.35
LB01-50.8-75	Ø50.8	75.0	N-BK7	75.54	11.30	2.50	71.17
LB01-50.8-100	Ø50.8	100.0	N-BK7	101.81	8.93	2.50	97.00
LB01-50.8-150	Ø50.8	150.0	N-BK7	153.9	6.72	2.50	147.78
LB01-50.8-200	Ø50.8	200.0	N-BK7	205.70	6.00	2.85	198.01
LB01-50.8-250	Ø50.8	250.0	N-BK7	257.37	6.00	3.48	248.01
LB01-50.8-300	Ø50.8	300.0	N-BK7	309.05	6.00	3.90	298.01
LB01-50.8-400	Ø50.8	400.0	N-BK7	412.42	6.00	4.43	398.02
LB01-50.8-500	Ø50.8	500.0	N-BK7	515.77	6.00	4.75	498.02

Notes:

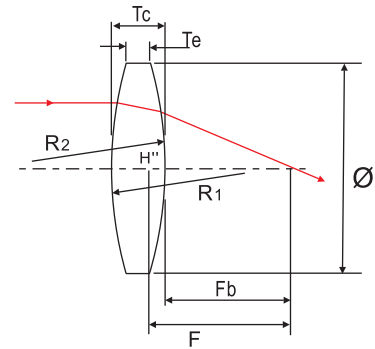
- 1, The listed lenses are without coating, please contact us for coating.
- 2, Custom lenses are available upon request.



## Bi-Convex Lenses

### Material: UV Fused Silica

Diameter tolerance:  $\pm 0.1\text{mm}$   
 Thickness tolerance:  $\pm 0.1\text{mm}$   
 Focal length tolerance:  $\pm 1\%$   
 Design wavelength: 588nm  
 Surface quality: 40-20 S/D  
 Flatness:  $\lambda/4 @ 633\text{nm}$   
 Centration: 3-5 arcmin  
 Clear aperture: 90%

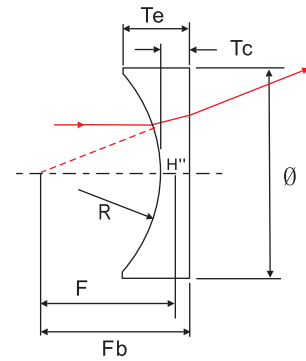


Item#	Diameter	Focal	Material	$R_1=-R_2$	Tc	Te	Fb
LB02-6-9	Ø6.0	9.0	UV FS	8.8	2.6	1.5	9.1
LB02-6-12	Ø6.0	12.0	UV FS	10.66	2.36	1.5	11.17
LB02-6-15	Ø6.0	15.0	UV FS	13.4	2.2	1.5	14.2
LB02-6-18	Ø6.0	18.0	UV FS	16.24	2.05	1.5	17.3
LB02-6-25	Ø6.0	25.0	UV FS	22.68	2.00	1.6	24.3
LB02-6-30	Ø6.0	30.0	UV FS	27.3	2.00	1.67	29.3
LB02-12.7-15	Ø12.7	15.0	UV FS	12.95	5.1	1.8	13.14
LB02-12.7-20	Ø12.7	20.0	UV FS	17.74	4.15	1.8	18.54
LB02-12.7-25	Ø12.7	25.0	UV FS	22.4	3.64	1.8	23.73
LB02-12.7-30	Ø12.7	30.0	UV FS	27.1	3.3	1.8	28.8
LB02-12.7-40	Ø12.7	40.0	UV FS	36.3	2.9	1.8	39.0
LB02-12.7-50	Ø12.7	50.0	UV FS	45.6	2.7	1.8	49.1
LB02-12.7-75	Ø12.7	75.0	UV FS	68.6	2.4	1.8	74.2
LB02-12.7-100	Ø12.7	100.0	UV FS	91.7	2.2	1.8	99.2
LB02-25.4-30	Ø25.4	35.0	UV FS	31.0	7.4	2.0	32.4
LB02-25.4-40	Ø25.4	40.0	UV FS	35.7	6.7	2.0	37.6
LB02-25.4-50	Ø25.4	50.0	UV FS	45.1	5.7	2.0	48.0
LB02-25.4-60	Ø25.4	60.0	UV FS	54.4	5.0	2.0	58.2
LB02-25.4-75	Ø25.4	75.0	UV FS	68.3	4.4	2.0	73.5
LB02-25.4-100	Ø25.4	100.0	UV FS	91.4	3.8	2.0	98.7
LB02-25.4-125	Ø25.4	125.0	UV FS	114.5	3.4	2.0	123.8
LB02-25.4-150	Ø25.4	150.0	UV FS	137.5	3.2	2.0	148.9
LB02-25.4-200	Ø25.4	200.0	UV FS	183.6	2.9	2.0	199.0
LB02-25.4-250	Ø25.4	250.0	UV FS	229.6	2.7	2.0	249.1
LB02-25.4-300	Ø25.4	300.0	UV FS	275.6	2.6	2.0	299.1
LB02-25.4-400	Ø25.4	400.0	UV FS	367.7	2.4	2.0	399.1
LB02-25.4-500	Ø25.4	500.0	UV FS	459.7	2.35	2.0	499.2
LB02-25.4-750	Ø25.4	750.0	UV FS	689.8	2.2	2.0	749.2
LB02-25.4-1000	Ø25.4	1000.0	UV FS	919.8	2.2	2.0	999.3
LB02-50.8-100	Ø50.8	100.0	UV FS	90.4	10.3	3.0	96.4
LB02-50.8-150	Ø50.8	150.0	UV FS	136.8	7.8	3.0	147.3
LB02-50.8-200	Ø50.8	200.0	UV FS	183.0	6.5	3.0	197.7
LB02-50.8-250	Ø50.8	250.0	UV FS	229.1	5.8	3.0	248.0
LB02-50.8-300	Ø50.8	300.0	UV FS	275.2	5.4	3.0	298.2
LB02-50.8-400	Ø50.8	400.0	UV FS	367.3	4.8	3.0	398.3
LB02-50.8-500	Ø50.8	500.0	UV FS	459.4	4.4	3.0	498.5

## Plano-Concave Lenses

Material: BK7, UV Fused silica, SF11

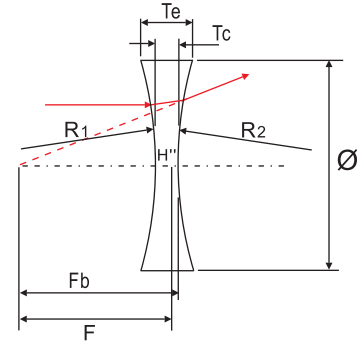
Diameter tolerance:  $\pm 0.1\text{mm}$   
 Thickness tolerance:  $\pm 0.1\text{mm}$   
 Focal length tolerance:  $\pm 1\%$   
 Design wavelength: 588nm  
 Surface quality: 40-20 S/D  
 Flatness:  $\lambda/4$  @633nm  
 Centration: 3-5 arcmin  
 Clear aperture: 90%



Item#	Diameter	Focal	Material	R	Tc	Te	Fb
LP13-6-6	Ø6.0	-6.0	N-SF11	-4.71	1.5	2.22	-6.8
LP13-6-9	Ø6.0	-9.0	N-SF11	-7.06	1.5	2.04	-9.84
LP11-6-12	Ø6.0	-12.0	N-BK7	-6.20	1.5	2.12	-12.99
LP11-6-15	Ø6.0	-15.0	N-BK7	-7.75	2.0	2.49	-16.32
LP11-6-18	Ø6.0	-18.0	N-BK7	-9.30	2.0	2.40	-19.32
LP13-12.7-12	Ø12.7	-12.0	N-SF11	-9.42	2.0	4.46	-13.13
LP13-12.7-15	Ø12.7	-15.0	N-SF11	-11.77	2.0	3.86	-16.12
LP13-12.7-18	Ø12.7	-18.0	N-SF11	-14.12	2.0	3.50	-19.12
LP11-12.7-25	Ø12.7	-25.0	N-BK7	-12.92	2.0	3.67	-26.3
LP11-12.7-30	Ø12.7	-30.0	N-BK7	-15.50	2.0	3.36	-31.3
LP11-12.7-40	Ø12.7	-40.0	N-BK7	-20.67	2.0	3.00	-41.3
LP11-12.7-50	Ø12.7	-50.0	N-BK7	-25.84	2.0	2.79	-51.3
LP13-25.4-30	Ø25.4	-30.0	N-SF11	-23.54	3.5	7.2	-31.96
LP11-25.4-50	Ø25.4	-50.0	N-BK7	-25.84	3.5	6.8	-52.32
LP11-25.4-75	Ø25.4	-75.0	N-BK7	-38.76	3.5	5.6	-77.32
LP11-25.4-100	Ø25.4	-100.0	N-BK7	-51.7	3.5	5.0	-102.36
LP11-25.4-150	Ø25.4	-150.0	N-BK7	-77.52	3.5	4.5	-152.3
LP11-25.4-200	Ø25.4	-200.0	N-BK7	-103.36	3.5	4.3	-202.3
LP11-50.8-100	Ø50.8	-75.0	N-BK7	-38.76	3.5	13.0	-77.3
LP11-50.8-150	Ø50.8	-100.0	N-BK7	-51.7	4.0	10.6	-102.69
LP11-50.8-200	Ø50.8	-150.0	N-BK7	-77.52	4.0	8.2	-152.67
LP12-6-10	Ø6.0	-10.0	UV FS	-4.6	2.0	3.1	-11.37
LP12-6-12	Ø6.0	-12.0	UV FS	-5.5	2.0	2.8	-13.3
LP12-6-15	Ø6.0	-15.0	UV FS	-6.9	2.0	2.6	-16.4
LP12-12.7-20	Ø12.7	-20.0	UV FS	-9.2	2.0	4.5	-21.37
LP12-12.7-25	Ø12.7	-25.0	UV FS	-11.5	2.0	3.9	-26.36
LP12-12.7-30	Ø12.7	-30.0	UV FS	-13.8	2.0	3.55	-31.36
LP12-12.7-50	Ø12.7	-50.0	UV FS	-23.0	2.0	2.89	-51.37
LP12-25.4-35	Ø25.4	-35.0	UV FS	-16.1	2.5	8.70	-36.7
LP12-25.4-50	Ø25.4	-50.0	UV FS	-23.0	2.5	6.3	-51.7
LP12-25.4-75	Ø25.4	-75.0	UV FS	-34.5	2.5	4.9	-76.7
LP12-25.4-100	Ø25.4	-100.0	UV FS	-46.0	2.5	4.2	-101.7
LP12-25.4-150	Ø25.4	-150.0	UV FS	-69.0	2.5	3.7	-151.7
LP12-25.4-200	Ø25.4	-200.0	UV FS	-92.0	2.5	3.3	-201.7
LP12-50.8-100	Ø50.8	-100.0	UV FS	-46.0	3.5	11.0	-102.4
LP12-50.8-150	Ø50.8	-150.0	UV FS	-69.0	3.5	8.3	-152.4
LP12-50.8-200	Ø50.8	-200.0	UV FS	-92.0	3.5	7.0	-202.4

## Bi-Concave Lenses (BK7, UV Fused silica, SF11)

Diameter tolerance:  $\pm 0.1\text{mm}$   
 Thickness tolerance:  $\pm 0.1\text{mm}$   
 Focal length tolerance:  $\pm 1\%$   
 Design wavelength: 588nm  
 Surface quality: 40-20 S/D  
 Flatness:  $\lambda/4$  @633nm  
 Centration: 3-5 arcmin  
 Clear aperture: 90%



Item#	Diameter	Focal	Material	R	Tc	Te	Fb
LB13-6-6	Ø6.0	-6.0	N-SF11	-9.74	1.5	2.15	-6.41
LB11-6-9	Ø6.0	-9.0	N-BK7	-9.47	1.0	1.79	-9.32
LB11-6-12	Ø6.0	-12.0	N-BK7	-12.57	1.0	1.59	-12.33
LB13-12.7-12	Ø12.7	-12.0	N-SF11	-19.47	3.0	5.1	-12.81
LB11-12.7-15	Ø12.7	-15.0	N-BK7	-15.84	2.0	4.6	-15.65
LB11-12.7-18	Ø12.7	-18.0	N-BK7	-18.94	2.0	4.2	-18.65
LB11-12.7-25	Ø12.7	-25.0	N-BK7	-26.17	2.0	3.5	-25.64
LB11-12.7-50	Ø12.7	-50.0	N-BK7	-52.1	2.0	2.7	-50.7
LB13-25.4-25	Ø25.4	-25.0	N-SF11	-39.78	2.5	6.6	-25.69
LB11-25.4-50	Ø25.4	-50.0	N-BK7	-52.10	2.5	5.6	-50.82
LB11-25.4-75	Ø25.4	-75.0	N-BK7	-78.0	2.5	4.5	-75.87
LB11-25.4-100	Ø25.4	-100.0	N-BK7	-104.0	3.0	4.5	-101.1
LB12-6-10	Ø6.0	-10.0	UV FS	-9.5	2.0	3.0	-10.66
LB12-6-12	Ø6.0	-12.0	UV FS	-11.35	2.0	2.8	-12.67
LB12-6-15	Ø6.0	-15.0	UV FS	-14.1	2.0	2.6	-15.66
LB12-12.7-15	Ø12.7	-15.0	UV FS	-14.1	2.0	5.0	-15.66
LB12-12.7-25	Ø12.7	-25.0	UV FS	-23.32	2.0	3.7	-25.68
LB12-12.7-30	Ø12.7	-30.0	UV FS	-27.9	2.0	3.4	-30.67
LB12-12.7-50	Ø12.7	-50.0	UV FS	-46.3	2.0	2.8	-50.67
LB12-25.4-50	Ø25.4	-50.0	UV FS	-46.4	2.5	6.0	-50.86
LB12-25.4-75	Ø25.4	-75.0	UV FS	-69.4	2.5	4.8	-75.86
LB12-25.4-100	Ø25.4	-100.0	UV FS	-92.4	2.5	4.2	-100.86

### Notes:

- 1, The listed lenses are without coating, please contact us for coating.
- 2, Custom lenses are available upon request.

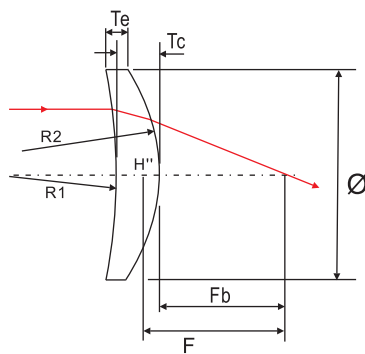
Price  
on request

Volume  
Discount

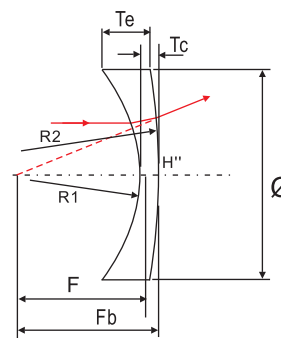
Custom  
Design

## Meniscus Lenses

Diameter tolerance:  $\pm 0.1\text{mm}$   
 Thickness tolerance:  $\pm 0.1\text{mm}$   
 Focal length tolerance:  $\pm 1\%$   
 Design wavelength: 588nm  
 Surface quality: 40-20 S/D  
 Flatness:  $\lambda/4$  @633nm  
 Centration: 3-5 arcmin  
 Clear aperture: 90%



Positive



Negative

Positive type

Item#	Diameter	Focal	Material	R <sub>1</sub>	R <sub>2</sub>	T <sub>c</sub>	T <sub>e</sub>	F <sub>b</sub>
LM01-25-100	Ø25.4	100	N-BK7	33.72	90.0	4.0	2.5	97.5
LM01-25-125	Ø25.4	125	N-BK7	38.47	90.0	4.0	2.8	121.8
LM01-25-150	Ø25.4	150	N-BK7	42.52	90.0	4.0	3.0	146.3
LM01-25-200	Ø25.4	200	N-BK7	49.03	90.0	4.0	2.8	197.0
LM01-25-300	Ø25.4	300	N-BK7	94.08	235.0	3.5	3.0	297.2
LM01-25-500	Ø25.4	500	N-BK7	123.9	235.0	3.5	3.2	495.4

Negative type

Item#	Diameter	Focal	Material	R <sub>1</sub>	R <sub>2</sub>	T <sub>c</sub>	T <sub>e</sub>	F <sub>b</sub>
LM11-25-100	Ø25.4	-100	N-BK7	90.0	32.59	3.0	4.5	-99.2
LM11-25-125	Ø25.4	-125	N-BK7	90.0	37.26	3.0	4.2	-123.7
LM11-25-150	Ø25.4	-150	N-BK7	90.0	41.42	3.0	4.0	-149.5
LM11-25-200	Ø25.4	-200	N-BK7	90.0	47.84	3.0	3.7	-199.5
LM11-25-300	Ø25.4	-300	N-BK7	235.0	93.13	3.0	3.5	-298.3
LM11-25-500	Ø25.4	-500	N-BK7	235.0	122.6	3.0	3.3	-496.5

Notes:

- 1, The listed lenses are without coating, please contact us for coating.
- 2, Custom lenses are available upon request.

## Achromatic Lenses

Achromatic lenses are lenses consisting of two or more elements, which are usually made of crown and flint glass with differing indices of refraction. One element is positive, the other is negative. Distinct wavelengths can be corrected for chromatic aberration.

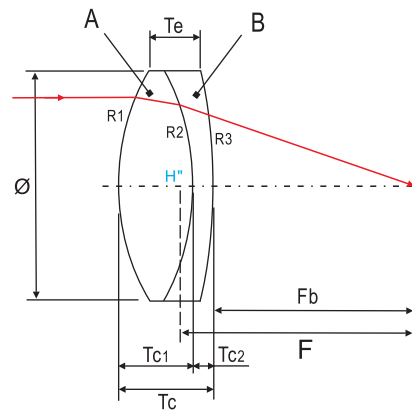
Achromatic lenses are nearly free from spherical aberration and coma. Comparing with singlet lenses, achromatic lenses have far superior optical performance.

### Visible Achromatic Lenses

Design wavelength: 430-680nm

Diameter tolerance:  $\pm 0.1$ mm  
 Focal length tolerance:  $\pm 2\%$   
 Surface quality: 60-40 S/D  
 Centration:  $< 3$  arcmin  
 Surface flatness:  
 Clear aperture: 90%  
 Bevel: protective bevel

Coating: AR @430-680nm, R $< 0.5\%$



Item#	Diameter	Focal	Fb	Tc1+Tc2	Te	A	B	R1	R2	R3
LAO-3-4.5	Ø3.0	4.5	2.99	2.00+1.00	2.48	N-LAK22	N-SF6	3.16	2.23	7.88
LAO-3-6	Ø3.0	6.0	4.33	1.97+1.03	2.67	N-BaF10	N-SF10	4.13	2.36	21.7
LAO-3-9	Ø3.0	9.0	7.79	1.47+1.03	2.19	N-BK7	N-SF5	5.26	3.98	12.05
LAO-3-12	Ø3.0	12.0	10.77	1.68+1.00	2.45	N-BK7	N-SF5	7.39	5.15	14.62
LAO-4-6	Ø4.0	6.0	3.92	2.80+1.00	3.19	N-BaF10	N-SF10	4.24	2.6	18.9
LAO-4-8	Ø4.0	8.0	6.69	1.50+1.03	2.09	N-BaF10	N-SF10	5.76	3.49	26.05
LAO-4-10	Ø4.0	10.0	8.40	2.00+1.00	2.65	N-BaF10	N-SF10	7.12	4.22	33.66
LAO-4-12	Ø4.0	12.0	10.70	1.80+1.00	2.39	N-BK7	N-SF5	7.35	5.09	14.6
LAO-5-10	Ø5.0	10.0	8.56	1.73+1.03	2.22	N-BaF10	N-SF10	7.17	4.39	33.96
LAO-5-15	Ø5.0	15.0	13.64	1.55+1.03	2.23	N-BaF10	N-SF10	10.67	6.46	53.57
LAO-5-20	Ø5.0	20.0	18.60	1.61+1.03	2.37	N-BaF10	N-SF10	14.11	8.63	75.59
LAO-6-10	Ø6.0	10.0	7.83	3.06+1.03	3.52	N-BaF10	N-SF10	6.98	4.35	41.01
LAO-6-12.5	Ø6.0	12.5	10.36	3.00+0.08	3.35	N-BaF10	N-SF10	8.63	5.29	51.17
LAO-6-15	Ø6.0	15.0	13.0	2.50+1.50	3.20	N-BK7	N-SF2	8.79	6.55	21.68
LAO-6-20	Ø6.0	20.0	18.23	2.70+0.9	3.05	N-BK7	N-SF2	12.3	8.71	24.98
LAO-6-25	Ø6.0	25.0	23.45	2.30+0.9	2.76	N-BK7	N-SF2	15.37	11.16	32.17
LAO-6-30	Ø6.0	30.0	28.43	2.30+0.9	2.83	N-BK7	N-SF2	18.11	13.51	39.29
LAO-6-35	Ø6.0	35.0	33.59	2.30+0.9	2.89	N-BK7	N-SF2	23.14	14.51	38.86
LAO-6-40	Ø6.0	40.0	38.46	2.30+1.0	3.03	N-BK7	N-SF2	25.05	17.27	49.33
LAO-6-50	Ø6.0	50.0	48.61	2.00+1.0	2.78	N-BK7	N-SF2	30.77	22.05	64.60



Price  
on request

Volume  
Discount

Custom  
Design

Notes:

1, Custom lenses are available upon request.

Item#	Diameter	Focal	Fb	Tc1+Tc2	Te	A	B	R1	R2	R3
LAO-10-15	Ø10.0	15.0	10.66	5.50+2.0	6.00	N-BaF10	N-SF10	10.04	7.0	80.71
LAO-10-20	Ø10.0	20.0	17.25	4.00+1.0	3.91	N-BaF10	N-SF10	14.15	8.38	71.22
LAO-10-25	Ø10.0	25.0	22.60	3.50+1.5	3.76	N-BK7	N-SF5	15.37	11.10	31.47
LAO-10-30	Ø10.0	30.0	27.47	3.50+2.0	4.48	N-BK7	N-SF5	18.58	13.17	37.11
LAO-10-40	Ø10.0	40.0	37.79	3.00+1.5	3.75	N-BK7	N-SF5	23.66	18.11	55.78
LAO-10-50	Ø10.0	50.0	47.45	3.00+1.5	3.89	N-BK7	N-SF5	26.22	23.95	97.55
LAO-10-100	Ø10.0	100.0	98.16	3.00+1.5	3.70	N-BK7	N-SF5	60.99	43.74	130.98
LAO-12.7-15	Ø12.7	15.0	10.82	6.00+1.0	4.17	N-LAK22	N-SF6	9.55	8.6	48.5
LAO-12.7-25	Ø12.7	25.0	21.47	5.00+1.25	4.85	N-BaF10	N-SF10	17.27	10.99	107.03
LAO-12.7-30	Ø12.7	30.0	27.5	3.50+1.50	3.4	N-BK7	N-SF2	17.86	13.53	44.17
LAO-12.7-35	Ø12.7	35.0	32.50	3.68+1.50	3.94	N-SK11	N-SF5	22.94	15.54	58.84
LAO-12.7-40	Ø12.7	40.0	37.54	3.73+1.33	3.84	N-BK7	N-SF5	24.77	18.01	51.17
LAO-12.7-50	Ø12.7	50.0	47.61	3.50+1.50	4.02	N-BK7	N-SF5	30.73	22.32	64.75
LAO-12.7-60	Ø12.7	60.0	57.59	3.50+1.50	4.18	N-BK7	N-SF5	36.51	26.33	78.35
LAO-12.7-75	Ø12.7	75.0	72.35	3.00+1.60	3.95	N-BK7	N-SF5	46.44	33.77	95.94
LAO-12.7-80	Ø12.7	80.0	78.40	2.10+1.60	3.09	N-BK7	N-SF5	49.62	35.73	103.22
LAO-12.7-90	Ø12.7	90.0	88.47	1.98+1.60	3.04	N-BK7	N-SF5	55.80	10.17	116.32
LAO-12.7-100	Ø12.7	100.0	97.92	3.00+1.50	4.00	N-BK7	N-SF5	61.54	44.39	130.26
LAO-12.7-125	Ø12.7	125.0	121.95	4.50+2.00	6.11	N-BK7	N-SF5	76.92	55.48	162.59
LAO-15-20	Ø15.0	20.0	15.34	6.80+2.0	5.98	N-BaF10	N-SF57	14.01	11.36	44.21
LAO-15-30	Ø15.0	30.0	25.78	6.50+1.5	5.88	N-BaF10	N-SF10	20.72	13.17	128.44
LAO-15-40	Ø15.0	40.0	35.63	5.98+1.6	6.38	N-BaF10	N-SF10	26.97	17.64	205.03
LAO-15-50	Ø15.0	50.0	46.17	5.00+1.5	5.12	N-BK7	N-SF5	26.81	23.82	90.79
LAO-15-60	Ø15.0	60.0	57.48	3.50+2.0	4.37	N-BK7	N-SF5	37.23	26.69	76.36
LAO-15-75	Ø15.0	75.0	70.78	5.00+2.5	6.59	N-BK7	N-SF5	39.61	36.46	145.02
LAO-18-30	Ø18.0	30.0	24.97	6.91+2.0	6.55	N-BaF10	N-SF10	20.73	14.31	133.58
LAO-18-35	Ø18.0	35.0	30.72	6.01+1.6	5.61	N-BaF10	N-SF10	24.26	16.23	152.99
LAO-18-40	Ø18.0	40.0	35.63	5.98+1.6	5.84	N-BaF10	N-SF10	26.97	17.64	205.03
LAO-18-60	Ø18.0	60.0	56.79	3.85+2.0	4.71	N-BaF10	N-SF10	42.51	26.24	226.77
LAO-18-75	Ø18.0	75.0	72.15	3.27+2.0	4.36	N-BaF10	N-SF10	53.03	32.72	288.05

## Visible Achromatic Lenses

Design wavelength: 430-680nm

Item#	Diameter	Focal	Fb	Tc1+Tc2	Te	A	B	R1	R2	R3
LAO-25.4-30	Ø25.4	30.0	22.23	11.04+3.00	9.13	N-BaF10	N-SF10	21.17	16.08	118.66
LAO-25.4-40	Ø25.4	45.0	39.28	7.89+3.00	7.00	N-SK11	N-SF5	28.75	21.38	82.92
LAO-25.4-50	Ø25.4	50.0	43.53	9.00+2.50	8.70	N-BaF10	N-SF10	34.53	21.98	214.63
LAO-25.4-75	Ø25.4	75.0	70.39	7.00+2.50	6.88	N-BK7	N-SF5	46.44	33.77	95.94
LAO-25.4-85	Ø25.4	85.0	81.21	5.00+3.00	6.00	N-SK11	N-SF5	55.68	38.37	146.45
LAO-25.4-100	Ø25.4	100.0	95.92	6.00+2.50	6.55	N-BK7	N-SF5	61.47	44.64	129.94
LAO-25.4-125	Ø25.4	125.0	120.89	6.00+2.40	6.84	N-BK7	N-SF5	76.28	54.55	162.43
LAO-25.4-150	Ø25.4	150.0	146.10	5.70+2.20	6.60	N-BK7	N-SF5	91.37	66.21	197.71
LAO-25.4-175	Ø25.4	175.0	170.84	6.00+3.00	7.90	N-BK7	N-SF5	109.16	79.38	226.03
LAO-25.4-200	Ø25.4	200.0	194.14	8.50+4.00	11.53	N-BK7	N-SF5	124.12	87.26	253.10
LAO-25.4-225	Ø25.4	225.0	222.7	3.00+2.50	4.64	N-BK7	N-SF5	139.53	100.21	291.32
LAO-25.4-250	Ø25.4	250.0	246.63	5.00+2.50	6.72	N-BK7	N-SF5	160.73	105.64	295.75
LAO-25.4-275	Ø25.4	275.0	271.60	5.00+2.50	6.80	N-BK7	N-SF5	171.03	121.54	352.46
LAO-25.4-300	Ø25.4	300.0	297.73	3.00+2.50	4.58	N-BK7	N-SF5	184.84	134.06	393.98
LAO-25.4-400	Ø25.4	400.0	397.84	3.00+2.50	5.02	N-BK7	N-SF5	244.65	179.62	534.1
LAO-25.4-500	Ø25.4	500.0	497.57	3.00+2.50	5.13	N-BK7	N-SF5	290.71	232.07	750.52
LAO-25.4-750	Ø25.4	750.0	746.47	2.50+2.50	4.74	N-BK7	N-SF5	315.2	507.71	∞
LAO-30-50	Ø30.0	50.0	42.57	11.00+2.20	9.25	N-BaF10	N-SF10	34.81	22.12	203.48
LAO-30-60	Ø30.0	60.0	52.50	8.47+2.99	7.66	N-SSK8	N-SF10	32.6	31.81	799.64
LAO-30-75	Ø30.0	75.0	67.44	8.40+3.00	8.40	N-SSK8	N-SF10	40.51	38.68	922.04
LAO-30-100	Ø30.0	100.0	94.54	8.25+2.80	8.31	N-BK7	N-SF5	61.36	44.3	128.9
LAO-30-125	Ø30.0	125.0	121.37	4.92+2.50	5.52	N-SK11	N-SF5	81.53	56.59	220.08
LAO-30-150	Ø30.0	150.0	144.63	8.10+2.60	8.88	N-BK7	N-SF5	91.31	65.57	195.87
LAO-30-200	Ø30.0	200.0	196.57	5.00+2.50	6.15	N-BK7	N-SF5	123.77	89.22	259.43
LAO-30-300	Ø30.0	300.0	296.85	4.50+2.50	6.12	N-BK7	N-SF5	184.4	133.95	394.96
LAO-40-80	Ø40.0	80.0	70.75	12.07+4.00	11.75	N-BaF10	N-SF10	53.76	36.73	435.85
LAO-40-100	Ø40.0	100.0	91.24	10.00+3.00	7.92	N-BK7	N-SF5	46.73	50.61	341.7
LAO-40-200	Ø40.0	200.0	194.20	8.50+4.00	10.10	N-BK7	N-SF5	124.12	87.26	253.1
LAO-40-250	Ø40.0	250.0	244.32	8.00+4.50	10.57	N-BK7	N-SF5	156.0	108.7	313.64
LAO-40-300	Ø40.0	300.0	293.63	9.00+4.10	11.66	N-BAK4	N-SF10	194.96	148.27	483.71
LAO-50.8-100	Ø50.8	100.0	89.94	13.92+4.00	12.53	N-BaF10	N-SF10	69.28	46.95	446.01
LAO-50.8-150	Ø50.8	150.0	143.17	9.50+4.00	8.93	N-BAK4	N-SF10	96.85	73.74	241.63
LAO-50.8-200	Ø50.8	200.0	194.45	9.00+3.50	9.11	N-BAK4	N-SF10	130.48	99.36	320.2
LAO-50.8-250	Ø50.8	250.0	243.41	9.75+3.50	10.54	N-BAK4	N-SF10	162.59	123.82	402.58
LAO-50.8-300	Ø50.8	300.0	292.91	9.00+3.50	10.25	N-BAK4	N-SF10	173.11	164.03	709.83
LAO-50.8-350	Ø50.8	350.0	344.32	8.00+4.00	10.07	N-BAK4	N-SF10	227.16	174.83	571.49
LAO-50.8-500	Ø50.8	500.0	494.50	8.00+4.00	10.50	N-BK7	N-SF5	305.74	223.2	663.82

Notes:

1, Custom lenses are available upon request.

Price  
on request

Volume  
Discount

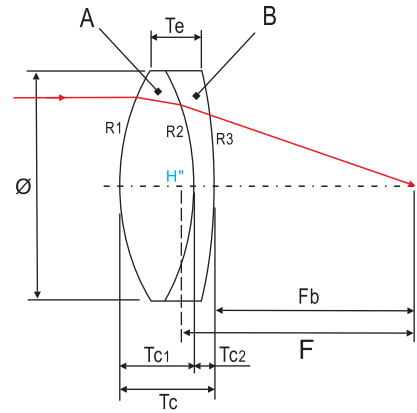
Custom  
Design

## Near IR Achromatic Lenses

Design wavelength: 700-1100nm

Diameter tolerance:  $\pm 0.1\text{mm}$   
 Focal length tolerance :  $\pm 2\%$   
 Surface quality: 60-40 S/D  
 Centration:  $< 3$  arcmin  
 Surface flatness:  
 Clear aperture: 90%  
 Bevel: protective bevel

Coating: AR @700-1050nm,  $R < 0.6\%$



Item#	Diameter	Focal	Fb	Tc1+Tc2	Te	A	B	R1	R2	R3
LAO-6-10-B	Ø6.0	10.0	8.1	2.5+1.5	2.3	N-LAK22	N-SF6L	7.08	5.25	19.54
LAO-6-12-B	Ø6.0	12.7	10.7	2.5+1.4	3.1	N-LAK22	N-SF6L	8.60	6.67	28.97
LAO-6-15-B	Ø6.0	15.0	13.1	2.4+1.5	3.2	N-LAK22	N-SF6L	10.28	7.75	32.89
LAO-6-20-B	Ø6.0	20.0	17.3	3.0+1.3	3.8	N-LAK22	N-SF6L	11.29	10.63	134.80
LAO-6-25-B	Ø6.0	25.0	22.2	3.0+1.3	3.9	N-LAK22	N-SF6L	13.95	13.40	193.19
LAO-6-30-B	Ø6.0	30.0	27.2	3.0+1.3	4.0	N-LAK22	N-SF6L	16.66	16.18	246.07
LAO-12.7-15-B	Ø12.7	15.0	9.9	6.5+2.0	5.7	N-LAK14	N-SF66	9.55	9.55	57.30
LAO-12.7-20-B	Ø12.7	20.0	14.2	8.0+2.5	8.4	N-LAK22	N-SF6L	13.13	9.59	45.11
LAO-12.7-25-B	Ø12.7	25.0	21.0	4.5+2.5	5.4	N-LAK22	N-SF6L	15.56	13.75	84.13
LAO-12.7-30-B	Ø12.7	30.0	25.8	4.5+2.5	5.7	N-LAK22	N-SF6L	17.77	16.46	136.8
LAO-12.7-40-B	Ø12.7	40.0	35.7	4.5+2.5	6.0	N-LAK22	N-SF6L	22.81	21.91	250.49
LAO-12.7-50-B	Ø12.7	50.0	46.7	3.0+2.5	4.8	N-LAK22	N-SF6L	28.51	28.20	322.09
LAO-12.7-60-B	Ø12.7	60.0	56.7	3.0+2.5	4.9	N-LAK22	N-SF6L	33.92	33.81	419.99
LAO-12.7-75-B	Ø12.7	75.0	71.6	3.0+2.5	4.0	N-LAK22	N-SF6L	42.11	42.30	565.11
LAO-25.4-40-B	Ø25.4	35.0	26.8	11.0+4.0	10.4	N-LAK22	N-SF6L	23.40	20.11	87.52
LAO-25.4-40-B	Ø25.4	40.0	31.7	11.0+4.0	11.0	N-LAK22	N-SF6L	26.27	22.26	105.93
LAO-25.4-50-B	Ø25.4	50.0	43.3	8.0+4.0	8.8	N-LAK22	N-SF6L	31.69	28.45	161.05
LAO-25.4-60-B	Ø25.4	60.0	52.9	8.0+4.0	9.4	N-LAK22	N-SF6L	36.27	33.80	248.86
LAO-25.4-75-B	Ø25.4	75.0	69.0	6.0+4.0	7.9	N-LAK22	N-SF6L	43.96	42.90	392.21
LAO-25.4-100-B	Ø25.4	100.0	93.9	6.0+4.0	8.4	N-LAK22	N-SF6L	57.01	56.72	656.51
LAO-25.4-150-B	Ø25.4	150.0	143.9	6.0+4.0	8.9	N-LAK22	N-SF6L	84.66	84.66	1071.91
LAO-25.4-200-B	Ø25.4	200.0	193.7	6.0+4.0	9.2	N-LAK22	N-SF6L	112.88	112.88	1415.6



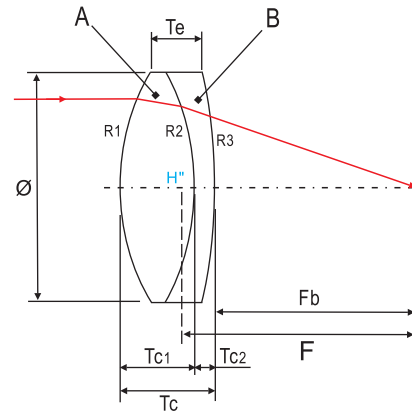
Notes:  
 1, Custom lenses are available upon request.

## Near IR Achromatic Lenses

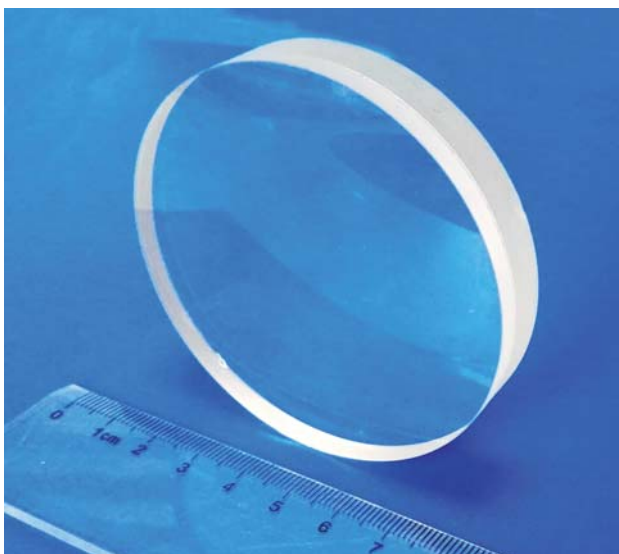
Design wavelength: 1050-1600nm

Diameter tolerance:  $\pm 0.1\text{mm}$   
 Focal length tolerance :  $\pm 2\%$   
 Surface quality: 60-40 S/D  
 Centration:  $< 3$  arcmin  
 Surface flatness:  
 Clear aperture: 90%  
 Bevel: protective bevel

Coating: AR @1050-1600nm, R<0.6%



Item#	Diameter	Focal	Fb	Tc1+Tc2	Te	A	B	R1	R2	R3
LAO-6-10-C	Ø6.0	10.0	8.5	3.5+1.3	3.9	N-LAK22	N-SF6L	10.35	3.64	9.20
LAO-6-12-C	Ø6.0	12.7	11.4	2.8+1.3	3.3	N-LAK22	N-SF6L	13.15	4.89	12.42
LAO-6-15-C	Ø6.0	15.0	14.4	2.3+1.3	3.0	N-LAK22	N-SF6L	22.70	4.89	11.32
LAO-6-20-C	Ø6.0	20.0	15.7	3.3+1.3	3.8	N-LAK22	N-SF6L	7.75	8.6	31.92
LAO-12.7-25-C	Ø12.7	25.0	20.3	4.7+1.5	4.5	N-LAK22	N-SF6L	12.0	12.94	151.7
LAO-12.7-30-C	Ø12.7	30.0	24.5	4.7+1.5	4.8	N-LAK22	N-SF6L	12.42	14.03	65.31
LAO-12.7-50-C	Ø12.7	50.0	43.5	4.0+1.5	4.6	N-BAF10	N-SF6L	15.95	18.41	44.60
LAO-12.7-75-C	Ø12.7	75.0	69.7	3.0+1.5	3.9	N-BAF10	N-SF6L	23.23	27.86	66.68
LAO-25.4-35-C	Ø25.4	35.0	27.4	11.5+1.8	8.7	N-BAF10	N-SF6L	23.15	17.87	105.2
LAO-25.4-40-C	Ø25.4	40.0	32.8	10.0+1.8	7.7	N-LAK22	N-SF6L	24.43	21.09	143.92
LAO-25.4-50-C	Ø25.4	50.0	41.2	9.0+1.8	7.4	N-LAK22	N-SF6L	22.94	25.88	194.54
LAO-25.4-60-C	Ø25.4	60.0	50.5	8.3+1.8	7.2	N-LAK22	N-SF6L	23.88	28.12	112.08
LAO-25.4-75-C	Ø25.4	75.0	64.9	7.6+1.8	7.1	N-BAF10	N-SF6L	26.36	29.38	84.92
LAO-25.4-100-C	Ø25.4	100.0	90.3	6.5+1.8	6.6	N-BAF10	N-SF6L	32.14	38.02	93.54
LAO-25.4-150-C	Ø25.4	150.0	140.6	5.0+2.5	6.3	N-BAF10	N-SF6L	42.69	52.0	111.51
LAO-25.4-200-C	Ø25.4	200.0	193.1	4.0+3.0	6.1	N-BAF10	N-SF6L	70.0	95.94	274.3
LAO-25.4-250-C	Ø25.4	250.0	235.3	4.5+2.5	6.0	N-SF2	N-SF6L	43.95	57.68	93.11
LAO-25.4-200-C	Ø25.4	300.0	285.9	4.5+2.5	6.2	N-SF2	N-SF6L	52.48	68.54	112.21



Notes:  
 1, Custom lenses are available upon request.

Price  
on request

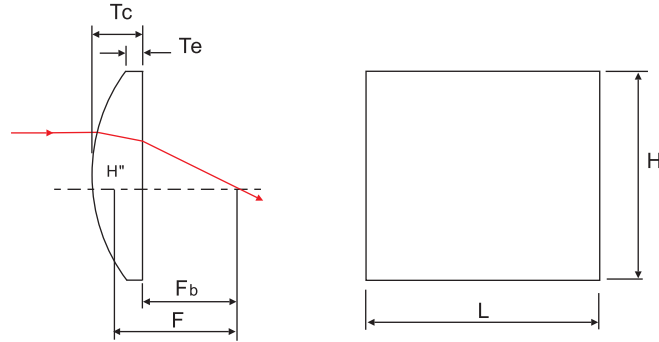
Volume  
Discount

Custom  
Design

## Cylindrical Lenses

### Cylindrical Plano-Convex Lenses - Rectangular

Diameter tolerance:  $\pm 0.1\text{mm}$   
 Central thickness tolerance:  $\pm 0.1\text{mm}$   
 Focal length tolerance:  $\pm 1\%$   
 Design wavelength: 588nm  
 Surface quality: 40-20 S/D  
 Flatness:  $\lambda/4 @ 633\text{nm}$   
 Centration: 3-5 arcmin  
 Clear aperture: 90%



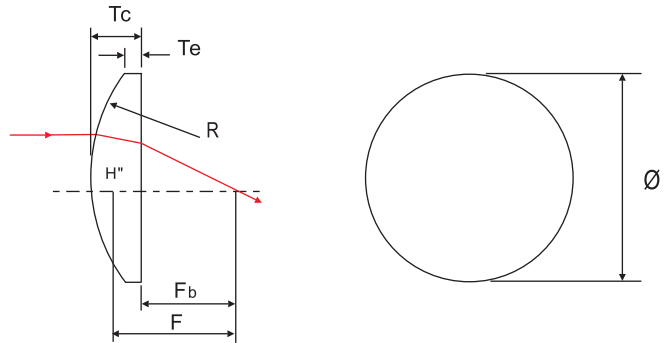
Item#	Length x Height	Focal	Material	Fb	R	Tc	Te
LC01-6x4-5.8	6.0x4.0	5.8	N-BK7	3.96	3.0	2.8	2.0
LC01-8x4-5.8	8.0x4.0	5.8	N-BK7	3.96	3.0	2.8	2.0
LC01-8x6-6.4	8.0x6.0	6.4	N-BK7	3.75	3.3	4.0	2.0
LC01-12x6-6.4	12.0x6.0	6.4	N-BK7	3.75	3.0	4.0	2.0
LC01-12x10-10	12.0x10.0	10.0	N-BK7	6.17	5.2	5.9	2.0
LC01-20x10-10	20.0x10.0	10.0	N-BK7	6.17	5.2	5.9	2.0
LC01-12x10-12.7	12.0x10.0	12.7	N-BK7	9.93	6.6	4.3	2.0
LC01-20x10-12.7	20.0x10.0	12.7	N-BK7	9.93	6.6	4.3	2.0
LC01-12x10-15	12.0x10.0	15.0	N-BK7	12.18	7.8	3.8	2.0
LC01-20x10-15	20.0x10.0	15.0	N-BK7	12.18	7.8	3.8	2.0
LC01-12x10-20	12.0x10.0	20.0	N-BK7	17.75	10.3	3.3	2.0
LC01-20x10-20	20.0x10.0	20.0	N-BK7	17.75	10.3	3.3	2.0
LC01-12x10-25	12.0x10.0	25.0	N-BK7	22.98	12.9	3.0	2.0
LC01-20x10-25	20.0x10.0	25.0	N-BK7	22.98	12.9	3.0	2.0
LC01-22x20-25	22.0x20.0	25.0	N-BK7	20.51	12.9	6.8	2.0
LC01-40x20-25	40.0x20.0	25.0	N-BK7	20.51	12.9	6.8	2.0
LC01-22x20-30	22.0x20.0	30.0	N-BK7	26.26	15.5	5.7	2.0
LC01-40x20-30	40.0x20.0	30.0	N-BK7	26.26	15.5	5.7	2.0
LC01-22x20-40	22.0x20.0	40.0	N-BK7	36.98	20.7	4.6	2.0
LC01-40x20-40	40.0x20.0	40.0	N-BK7	36.98	20.7	4.6	2.0
LC01-22x20-50	22.0x20.0	50.0	N-BK7	47.28	25.8	4.0	2.0
LC01-40x20-50	40.0x20.0	50.0	N-BK7	47.28	25.8	4.0	2.0
LC01-32x30-75	32.0x30.0	75.0	N-BK7	71.78	38.8	5.0	2.0
LC01-60x30-75	60.0x30.0	75.0	N-BK7	71.78	38.8	5.0	2.0
LC01-32x30-100	32.0x30.0	100.0	N-BK7	97.27	51.7	4.2	2.0
LC01-60x30-100	60.0x30.0	100.0	N-BK7	97.27	51.7	4.2	2.0
LC01-32x30-150	32.0x30.0	150.0	N-BK7	147.84	77.6	3.5	2.0
LC01-60x30-150	60.0x30.0	150.0	N-BK7	147.84	77.6	3.5	2.0

Notes:

- 1, The listed lenses are without coating, please contact us for coating.
- 2, Custom lenses are available upon request.

## Cylindrical Plano-Convex Lenses - Round

Diameter tolerance:  $\pm 0.1\text{mm}$   
 Thickness tolerance:  $\pm 0.1\text{mm}$   
 Focal length tolerance:  $\pm 1\%$   
 Design wavelength: 588nm  
 Surface quality: 40-20 S/D  
 Flatness:  $\lambda/4$  @633nm  
 Centration: 3-5 arcmin  
 Clear aperture: 90%

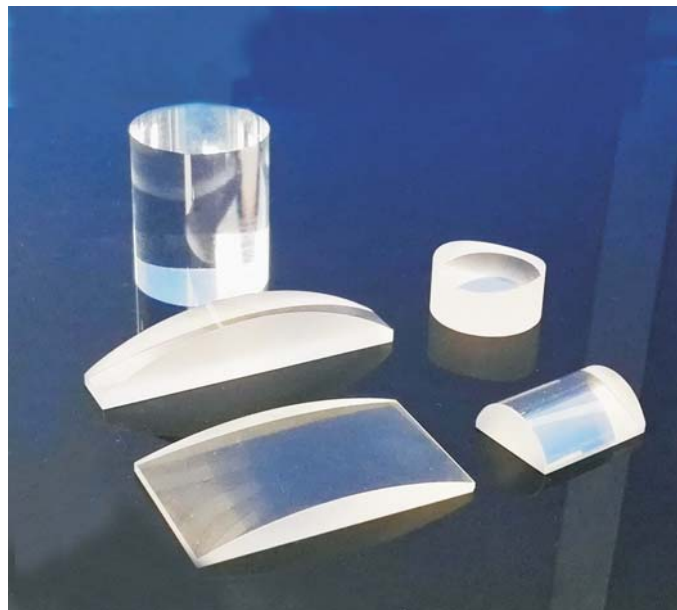


Item#	Diameter	Focal	Material	Fb	R	Tc	Te
LC01-6-10	Ø6.0	10.0	N-BK7	8.38	5.17	2.5	1.5
LC01-6-12	Ø6.0	12.0	N-BK7	10.35	6.20	2.3	1.5
LC01-6-15	Ø6.0	15.0	N-BK7	13.61	7.75	2.1	1.5
LC01-6-18	Ø6.0	18.0	N-BK7	16.61	9.30	2.1	1.6
LC01-12.7-15	Ø12.7	15.0	N-BK7	11.63	7.75	5.1	1.8
LC01-12.7-20	Ø12.7	20.0	N-BK7	17.37	10.34	4.0	1.8
LC01-12.7-25	Ø12.7	25.0	N-BK7	22.70	12.92	3.5	1.8
LC01-12.7-30	Ø12.7	30.0	N-BK7	27.91	15.5	3.2	1.8
LC01-12.7-50	Ø12.7	50.0	N-BK7	48.28	25.84	2.6	1.8
LC01-25.4-30	Ø25.4	30.0	N-BK7	24.32	15.5	8.6	2.0
LC01-25.4-50	Ø25.4	50.0	N-BK7	46.47	25.84	5.3	2.0
LC01-25.4-75	Ø25.4	75.0	N-BK7	72.27	38.76	4.1	2.0
LC01-25.4-100	Ø25.4	100.0	N-BK7	97.66	51.7	3.6	2.0
LC01-25.4-125	Ø25.4	125.0	N-BK7	122.85	64.6	3.2	2.0
LC01-25.4-150	Ø25.4	150.0	N-BK7	147.99	77.52	3.0	2.0

Price  
on request

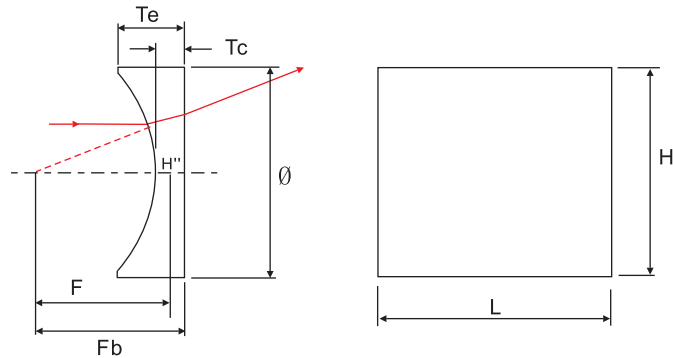
Volume  
Discount

Custom  
Design



## Cylindrical Plano-Concave Lenses - Rectangular

Diameter tolerance:  $\pm 0.1\text{mm}$   
 Thickness tolerance:  $\pm 0.1\text{mm}$   
 Focal length tolerance:  $\pm 1\%$   
 Design wavelength: 588nm  
 Surface quality: 40-20 S/D  
 Flatness:  $\lambda/4$  @633nm  
 Centration: 3-5 arcmin  
 Clear aperture: 90%



Item#	Length x Height	Focal	Material	Fb	R	Tc	Te
LC11-6x4-5.8	6.0x4.0	-5.8	N-BK7	-7.1	3.0	2.0	2.7
LC11-8x4-5.8	8.0x4.0	-5.8	N-BK7	-7.1	3.0	2.0	2.7
LC11-8x6-6.4	8.0x6.0	-6.4	N-BK7	-7.7	3.3	2.0	3.9
LC11-12x6-6.4	12.0x6.0	-6.4	N-BK7	-7.7	3.3	2.0	3.9
LC11-12x10-10	12.0x10.0	-10.0	N-BK7	-11.3	-5.17	2.0	5.8
LC11-20x10-10	20.0x10.0	-10.0	N-BK7	-11.3	-5.17	2.0	5.8
LC11-12x10-12.7	12.0x10.0	-12.7	N-BK7	-14.0	-6.57	2.0	4.3
LC11-20x10-12.7	20.0x10.0	-12.7	N-BK7	-14.0	-6.57	2.0	4.3
LC11-12x10-15	12.0x10.0	-15.0	N-BK7	-16.3	-7.75	2.0	3.8
LC11-20x10-15	20.0x10.0	-15.0	N-BK7	-16.3	-7.75	2.0	3.8
LC11-12x10-20	12.0x10.0	-20.0	N-BK7	-21.3	-10.34	2.0	3.3
LC11-20x10-20	20.0x10.0	-20.0	N-BK7	-21.3	-10.34	2.0	3.3
LC11-12x10-25	12.0x10.0	-25.0	N-BK7	-26.3	-12.92	2.0	3.0
LC11-20x10-25	20.0x10.0	-25.0	N-BK7	-26.3	-12.92	2.0	3.0
LC11-22x20-25	22.0x20.0	-25.0	N-BK7	-26.3	-12.92	2.0	6.7
LC11-40x20-25	40.0x20.0	-25.0	N-BK7	-26.3	-12.92	2.0	6.7
LC11-22x20-30	22.0x20.0	-30.0	N-BK7	-31.3	-15.5	2.0	5.6
LC11-40x20-30	40.0x20.0	-30.0	N-BK7	-31.3	-15.5	2.0	5.6
LC11-22x20-40	22.0x20.0	-40.0	N-BK7	-41.4	-20.7	2.0	4.5
LC11-40x20-40	40.0x20.0	-40.0	N-BK7	-41.4	-20.7	2.0	4.5
LC11-22x20-50	22.0x20.0	-50.0	N-BK7	-51.3	-25.84	2.0	4.0
LC11-32x30-50	40.0x20.0	-50.0	N-BK7	-51.3	-25.84	2.0	4.0
LC11-32x30-75	32.0x30.0	-75.0	N-BK7	-76.3	-38.76	2.0	3.3
LC11-32x30-100	32.0x30.0	-100.0	N-BK7	-101.3	-51.7	2.0	2.9
LC11-32x30-150	32.0x30.0	-150.0	N-BK7	-151.3	-77.52	2.0	2.6

Notes:

- 1, The listed lenses are without coating, please contact us for coating.
- 2, Custom lenses are available upon request.

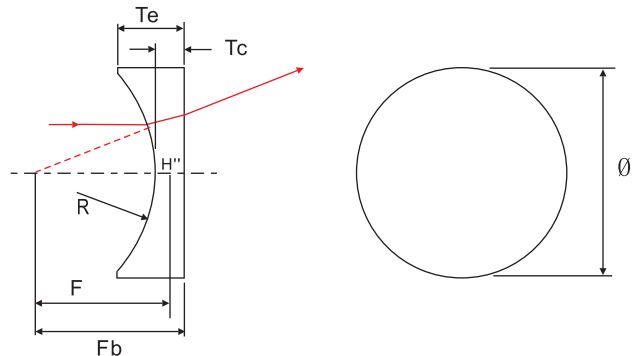
Price  
on request

Volume  
Discount

Custom  
Design

## Cylindrical Plano-Concave Lenses - Round

Diameter tolerance:  $\pm 0.1\text{mm}$   
 Central thickness tolerance:  $\pm 0.1\text{mm}$   
 Focal length tolerance:  $\pm 1\%$   
 Design wavelength: 588nm  
 Surface quality: 40-20 S/D  
 Flatness:  $\lambda/4$  @633nm  
 Centration: 3-5 arcmin  
 Clear aperture: 90%



Item#	Diameter	Focal	Material	Fb	R	Tc	Te
LC11-6-10	Ø6.0	-10.0	N-BK7	-10.9	-5.17	1.5	2.4
LC11-6-12	Ø6.0	-12.0	N-BK7	-12.9	-6.20	1.5	2.2
LC11-6-15	Ø6.0	-15.0	N-BK7	-15.9	-7.75	1.5	2.1
LC11-6-18	Ø6.0	-18.0	N-BK7	-18.9	-9.30	1.6	2.1
LC11-12.7-15	Ø12.7	-15.0	N-BK7	-16.2	-7.75	1.8	5.1
LC11-12.7-20	Ø12.7	-20.0	N-BK7	-21.2	-10.34	1.8	4.0
LC11-12.7-25	Ø12.7	-25.0	N-BK7	-26.2	-12.92	1.8	3.5
LC11-12.7-30	Ø12.7	-30.0	N-BK7	-31.2	-15.5	1.8	3.1
LC11-12.7-50	Ø12.7	-50.0	N-BK7	-51.2	-25.84	1.8	2.6
LC11-25.4-30	Ø25.4	-30.0	N-BK7	-31.3	-15.5	2.0	8.6
LC11-25.4-50	Ø25.4	-50.0	N-BK7	-51.3	-25.84	2.0	5.3
LC11-25.4-75	Ø25.4	-75.0	N-BK7	-76.3	-38.76	2.0	4.1
LC11-25.4-100	Ø25.4	-100.0	N-BK7	-101.3	-51.7	2.0	3.5
LC11-25.4-125	Ø25.4	-125.0	N-BK7	-126.3	-64.6	2.0	3.2
LC11-25.4-150	Ø25.4	-150.0	N-BK7	-151.3	-77.5	2.0	3.0

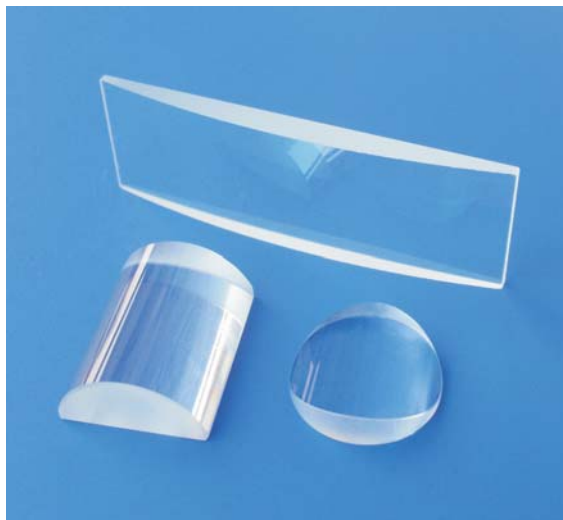
Notes:

- 1, The listed lenses are without coating, please contact us for coating.
- 2, Custom lenses are available upon request.

Price  
on request

Volume  
Discount

Custom  
Design

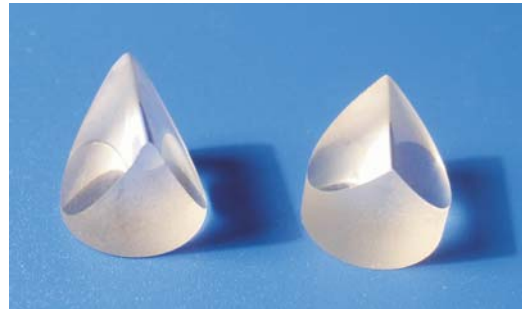


## Powell Lenses

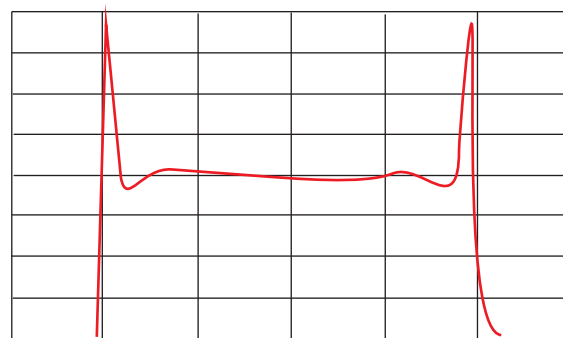
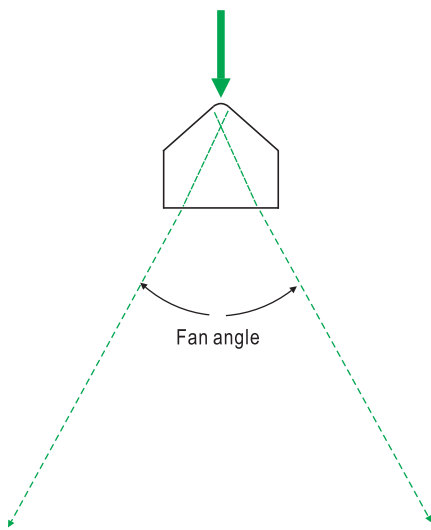
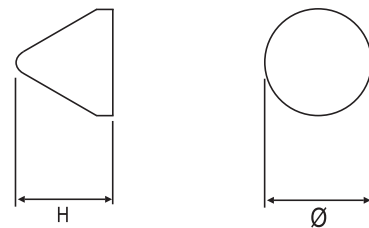
Powell lenses is used to generate straight line. With aspherical curvature on its apex, the output line from powell lenses is even distribution of energy. For comparision, Cylindrical lenses generate gaussian beam profiles with hot-spot centre points and fading edges.

The uniformity of output line is also related with incident wavelength, beam size, divergence, and working distance. To get even distribution of energy, The apex curvature need to be slightly modified and optimized for particular laser beam.

Material: N-BK7, N-SF6L  
 Diameter tolerance:  $\pm 0.1\text{mm}$   
 Surface quality: 80-50 S/D  
 Surface flatness:  $\lambda/2 @ 633\text{nm}$   
 Clear aperture: 80%



Item#	Diameter	Height	Material	Fan angle
PL-10	Ø9.0	8.0-8.7	N-BK7	10°
PL-20	Ø9.0	8.0-8.7	N-BK7	20°
PL-30	Ø9.0	8.0-8.7	N-BK7	30°
PL-45	Ø9.0	8.0-8.7	N-BK7	45°
PL-60	Ø9.0	8.0-8.7	N-SF6L	60°
PL-75	Ø9.0	8.0-8.7	N-SF6L	75°
PL-90	Ø9.0	8.0-8.7	N-SF6L	90°
PL-110	Ø9.0	8.0-8.7	N-SF6L	110°



Energy distribution

Price  
on request

Volume  
Discount

Custom  
Design

Notes:

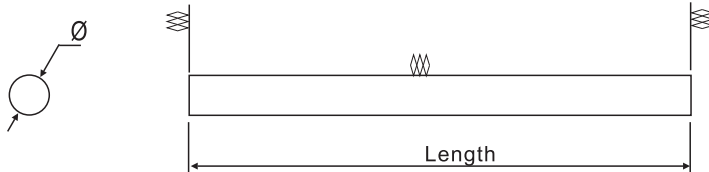
- 1, The listed lenses are without coating, please contact us for coating.
- 2, Custom lenses are available upon request.

## Rods (Light Pipe)

### General Specifications

Material	N-BK7
Diameter tolerance	$\pm 0.1\text{mm}$
Surface quality	80-50 S/D
Cylindricity	3 arcmin
Surface flatness	$\lambda/2@632.8\text{nm}$
Clear aperture	>90%

Diameter: available from 1.0mm to 25mm  
All surfaces (end-faces and cylinder) are polished



Price  
on request

Volume  
Discount

Custom  
Design

## Balls

### General Specifications

Material	N-BK7
Diameter tolerance	$\pm 0.1\text{mm}$
Surface quality	80-50 S/D
Cylindricity	3 arcmin
Surface flatness	$\lambda/2@632.8\text{nm}$
Clear aperture	>90%

Diameter: available from 1.0mm to 50mm  
All surfaces (end-faces and cylinder) are polished

