Lenses

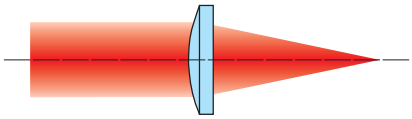
Lenses INDEX

Lenses Selection Guide

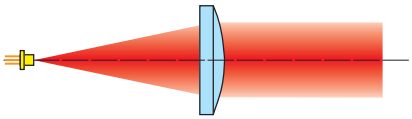
These Lenses listed here are a single lens polished to a spherical shape different to multi-element lens for cameras or telescopes. The performance is reduced to minimum with a wide range of applications at low cost.

Application	Type of Lens	Features	Relevance information
Focus・Image formation			
Focused laser beam	Plano Convex Lenses Reference B108	Low cost. Small spot size.	High performance product → Achromatic Lenses
Collimated light		Spherical aberration is small.	High performance product → Achromatic Lenses
Illumination	Biconvex Lenses Reference B123 Plano Convex Lenses	Compact. High numerical aperture.	High numerical aperture → Aspheric Lenses
Image formation (Microscope)	Biconvex Lenses, Plano Convex Lenses	Low cost. Observation of a narrow field of view.	High performance product → Achromatic Lenses, Camera Lenses
Beam Shaping Diffusers			
Beam expansion	Plano Convex Lenses + Plano Concave Lenses Reference B118	Low cost. Low magnification.	High performance products → Beam Expanders
Light sheet	Cylindrical Lenses Reference B140	Low cost. Diverging beam uniaxial.	
Irregular beam	Plano Convex Lenses + Cylindrical Lenses	Varying the Beam Diameter and, Aspect ratio, Beam Divergence Aspect ratio.	

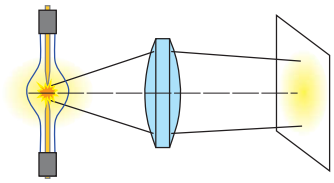
Focusing laser beam



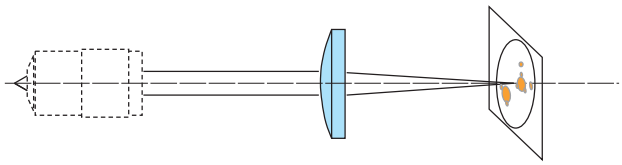
Collimating light



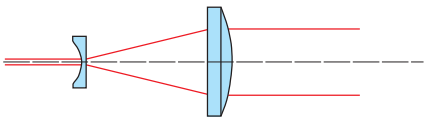
Illumination



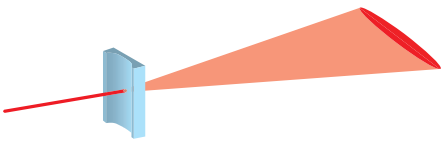
Imaging (Microscope)



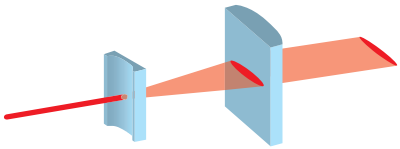
Beam expansion



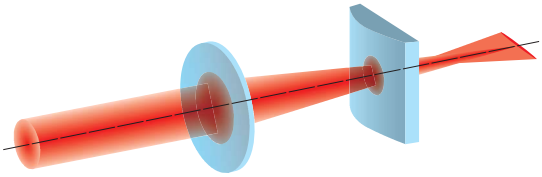
Light sheet (Diffusion)



Light sheet (Collimating)



Irregular beam

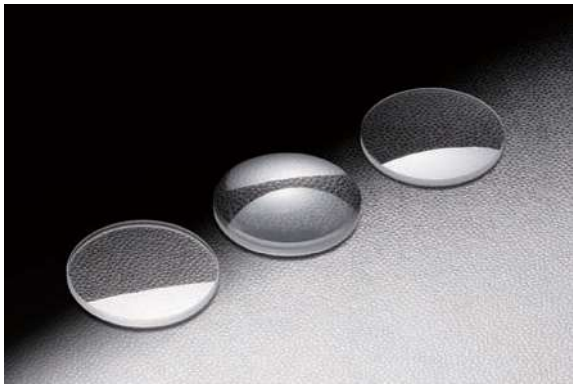


Plano Convex Lenses | SLB-P/SLSQ-P/SLSQK-P

RoHS

These are simple lenses having a flat surface on one side and a spherical surface on the other. They are also very close to the form which minimizes spherical aberration for infinite conjugate applications.
Our glass lenses are made from the highest grade of optical glass. We have a vast range of different diameters and focal lengths. The lenses listed here are standards. Please call if you do not see the lens you need. We have both larger and smaller lenses and many other diameters to choose from. However, we do try to keep these standards available for quick delivery.

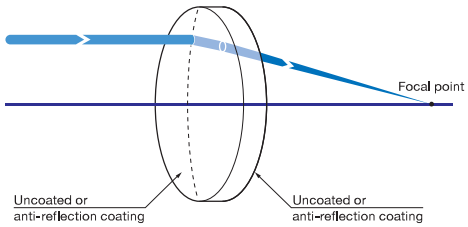
- There are three types of plano convex lenses available; BK7 for use in visible range to infrared wavelength range, synthetic fused silica for wavelengths less than 350nm ultraviolet light, and synthetic fused silica lens for excimer laser wavelenghts such as KrF (248nm) and ArF (193nm).
- BK7 lenses are also available with three types of anti-reflection coatings, visible wavelength range, in the near-infrared range and in the infrared range.
- Our lenses are listed by outside diameter and focal length to assist your selection according to required specifications.



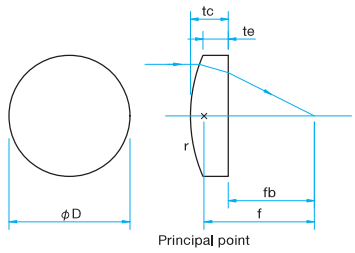
Specifications

Material	SLB: BK7 SLSQ: Synthetic fused silica SLSQK: Synthetic fused silica for Excimer Laser
Design wavelength	546.1nm
Refractive index	BK7: n_e=1.519 Synthetic fused silica: n_e=1.460
Coating	Uncoated: the end of the part number 'P' Anti-reflection coating: the end of the part number 'PM', 'PIR1', 'PIR2'
Laser Damage Threshold	Anti-reflection coating: 4J/cm^2 Laser pulse with 10ns, repetition frequency 20Hz
Clear aperture	90% of actual aperture: Uncoated 85% of actual aperture: with coating, ϕ10≦D 83% of actual aperture: with coating, D<ϕ10
Surface Quality (Scratch–Dig)	20–10 ϕ10≦D 40–20 D<ϕ10

Schematic



Outline Drawing (in mm)



●Tolerance
Diameter
ϕ60 or less $\phi D^{+0}_{-0.1}$
ϕ80 $\phi D^{+0}_{-0.15}$
ϕ100 $\phi D^{+0}_{-0.2}$
Focal length
(ϕ10≦ϕD) ±1%
(ϕD<ϕ10) ±2%

Guide

- Lenses are available in a large selection and in custom sizes and focal lengths.
- In addition to our standard coating we offer custom anti-reflective coating at specific wavelengths.
- Achromatic lenses (DLB) which are chromatic aberration correction are also available. Reference B172

Attention

- Plano convex lenses have a positive focal length and can be used in focusing and collimating applications.
- The plano convex lens has chromatic aberration, and the focal length will vary depending on the wavelength. Please check the "wavelength characteristic of the focal length data" on the Web.
  WEB Reference Catalog Code W3041
- Transmissions losses due to reflection off the front and rear surfaces of the lens can be minimized by coating the surfaces. Consult our Sales Division for anti-reflection coatings suitable for your application.

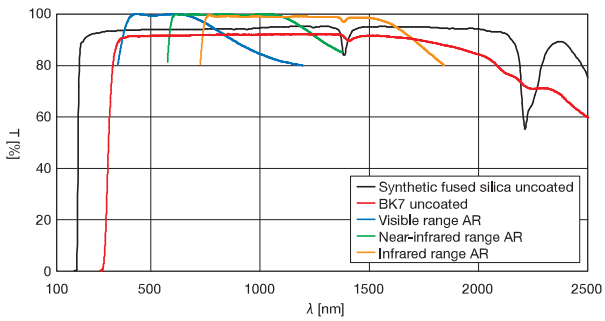
How to specify the anti-reflection coating

In case of specifying a anti-reflection coating 633nm – 1064nm to near infrared lens of SLB-100-500P.
⇒ SLB-100-500P**IR1**

Type of AR Coat	Part Number	Wavelength Range [nm]	Transmittance [%]
Visible range	SLB-100-500PM	400 – 700	> Average 99
Near-infrared	SLB-100-500PIR1	633 – 1064	> Average 98.5
Infrared	SLB-100-500PIR2	750 – 1550	> Average 98.5

! Part of the above is an example of if you want to coat anti-reflective coating on the lens of the SLB-100-500P.
! Anti-reflection coating can be available to the lens of all of SLB.

Typical Transmittance Data T: Transmission



BK7 ϕ5 – ϕ12.7

Uncoated	How to specify the anti-reflection coating			Diameter ϕD [mm]	Focal length f [mm]	Edge thickness te [mm]	Center thickness tc [mm]	Back focal length fb [mm]	Radius of curvature r [mm]	Centration [′]
Part Number	Visibe 400 – 700nm	Near-infrared 633 – 1064nm	Infrared 750 – 1550nm							
SLB-05-08P	M	IR1	IR2	ϕ5	8	1.4	2.3	6.5	4.15	<3
SLB-05-10P	M	IR1	IR2	ϕ5	10	1.3	2.0	8.7	5.19	<3
SLB-05-12P	M	IR1	IR2	ϕ5	12	1.2	1.8	10.8	6.23	<3
SLB-05-15P	M	IR1	IR2	ϕ5	15	1.2	1.6	13.9	7.79	<3
SLB-05-20P	M	IR1	IR2	ϕ5	20	1.1	1.4	19.1	10.38	<3
SLB-05-25P	M	IR1	IR2	ϕ5	25	1.1	1.4	24.1	12.98	<3
SLB-05-30P	M	IR1	IR2	ϕ5	30	1.1	1.3	29.1	15.57	<3
SLB-06-08P	M	IR1	IR2	ϕ6	8	1.0	2.3	6.5	4.15	<3
SLB-06-09P	M	IR1	IR2	ϕ6	9	1.0	2.1	7.6	4.67	<3
SLB-06-10P	M	IR1	IR2	ϕ6	10	1.0	2.0	8.7	5.19	<3
SLB-06-12P	M	IR1	IR2	ϕ6	12	1.0	1.8	10.8	6.23	<3
SLB-06-15P	M	IR1	IR2	ϕ6	15	1.0	1.6	13.9	7.79	<3
SLB-06-20P	M	IR1	IR2	ϕ6	20	1.0	1.4	19.1	10.38	<3
SLB-06-25P	M	IR1	IR2	ϕ6	25	1.0	1.4	24.1	12.98	<3
SLB-06-30P	M	IR1	IR2	ϕ6	30	1.0	1.3	29.1	15.57	<3
SLB-07-10P	M	IR1	IR2	ϕ7	10	2.0	3.4	7.8	5.19	<3
SLB-07-12P	M	IR1	IR2	ϕ7	12	1.9	3.0	10.1	6.23	<3
SLB-07-15P	M	IR1	IR2	ϕ7	15	1.8	2.6	13.3	7.79	<3
SLB-07-20P	M	IR1	IR2	ϕ7	20	1.7	2.3	18.5	10.38	<3
SLB-07-25P	M	IR1	IR2	ϕ7	25	1.7	2.1	23.6	12.98	<3
SLB-07-30P	M	IR1	IR2	ϕ7	30	1.6	2.0	28.7	15.57	<3
SLB-07-40P	M	IR1	IR2	ϕ7	40	1.6	1.9	38.8	20.76	<3
SLB-07-50P	M	IR1	IR2	ϕ7	50	1.6	1.8	48.8	25.95	<3
SLB-08-10P	M	IR1	IR2	ϕ8	10	1.5	3.4	7.8	5.19	<3
SLB-08-12P	M	IR1	IR2	ϕ8	12	1.5	3.0	10.1	6.23	<3
SLB-08-15P	M	IR1	IR2	ϕ8	15	1.5	2.6	13.3	7.79	<3
SLB-08-20P	M	IR1	IR2	ϕ8	20	1.5	2.3	18.5	10.38	<3
SLB-08-25P	M	IR1	IR2	ϕ8	25	1.5	2.1	23.6	12.98	<3
SLB-08-30P	M	IR1	IR2	ϕ8	30	1.5	2.0	28.7	15.57	<3
SLB-08-40P	M	IR1	IR2	ϕ8	40	1.5	1.9	38.8	20.76	<3
SLB-08-50P	M	IR1	IR2	ϕ8	50	1.5	1.8	48.8	25.95	<3
SLB-10-15P	M	IR1	IR2	ϕ10	15	2.0	3.8	12.5	7.79	<1
SLB-10-20P	M	IR1	IR2	ϕ10	20	2.0	3.3	17.8	10.38	<1
SLB-10-25P	M	IR1	IR2	ϕ10	25	2.0	3.0	23.0	12.98	<1
SLB-10-30P	M	IR1	IR2	ϕ10	30	2.0	2.8	28.1	15.57	<1
SLB-10-40P	M	IR1	IR2	ϕ10	40	2.0	2.6	38.3	20.76	<1
SLB-10-50P	M	IR1	IR2	ϕ10	50	2.0	2.5	48.4	25.95	<1
SLB-10-60P	M	IR1	IR2	ϕ10	60	2.0	2.4	58.4	31.14	<1
SLB-10-70P	M	IR1	IR2	ϕ10	70	2.0	2.3	68.5	36.33	<1
SLB-10-80P	M	IR1	IR2	ϕ10	80	2.0	2.3	78.5	41.52	<1
SLB-10-100P	M	IR1	IR2	ϕ10	100	2.0	2.2	98.5	51.90	<1
SLB-12.7-20P	M	IR1	IR2	ϕ12.7	20	2.0	4.2	17.2	10.38	<1
SLB-12.7-25P	M	IR1	IR2	ϕ12.7	25	2.0	3.7	22.6	12.98	<1
SLB-12.7-30P	M	IR1	IR2	ϕ12.7	30	2.0	3.4	27.8	15.57	<1
SLB-12.7-40P	M	IR1	IR2	ϕ12.7	40	2.0	3.0	38.0	20.76	<1
SLB-12.7-50P	M	IR1	IR2	ϕ12.7	50	2.0	2.8	48.2	25.95	<1
SLB-12.7-60P	M	IR1	IR2	ϕ12.7	60	2.0	2.7	58.3	31.14	<1
SLB-12.7-70P	M	IR1	IR2	ϕ12.7	70	2.0	2.6	68.3	36.33	<1
SLB-12.7-80P	M	IR1	IR2	ϕ12.7	80	2.0	2.5	78.4	41.52	<1
SLB-12.7-100P	M	IR1	IR2	ϕ12.7	100	2.0	2.4	98.5	51.90	<1

Compatible Optic Mounts

LHF-10S / MLH-10, -15

Plano Convex Lenses | SLB-P/SLSQ-P/SLSQK-P

Catalog Code W3042

BK7 ϕ15 – ϕ25.4

Uncoated	How to specify the anti-reflection coating			Diameter ϕD [mm]	Focal length f [mm]	Edge thickness te [mm]	Center thickness tc [mm]	Back focal length fb [mm]	Radius of curvature r [mm]	Centration [′]
Part Number	Visibe 400 – 700nm	Near-infrared 633 – 1064nm	Infrared 750 – 1550nm							
SLB-15-20P	M	IR1	IR2	ϕ15	20	2.0	5.2	16.6	10.38	<1
SLB-15-25P	M	IR1	IR2	ϕ15	25	2.0	4.4	22.1	12.98	<1
SLB-15-30P	M	IR1	IR2	ϕ15	30	2.0	3.9	27.4	15.57	<1
SLB-15-40P	M	IR1	IR2	ϕ15	40	2.0	3.4	37.8	20.76	<1
SLB-15-50P	M	IR1	IR2	ϕ15	50	2.0	3.1	48.0	25.95	<1
SLB-15-60P	M	IR1	IR2	ϕ15	60	2.0	2.9	58.1	31.14	<1
SLB-15-70P	M	IR1	IR2	ϕ15	70	2.0	2.8	68.2	36.33	<1
SLB-15-80P	M	IR1	IR2	ϕ15	80	2.0	2.7	78.2	41.52	<1
SLB-15-90P	M	IR1	IR2	ϕ15	90	2.0	2.6	88.3	46.71	<1
SLB-15-100P	M	IR1	IR2	ϕ15	100	2.0	2.5	98.3	51.90	<1
SLB-15-120P	M	IR1	IR2	ϕ15	120	2.0	2.5	118.4	62.28	<1
SLB-15-150P	M	IR1	IR2	ϕ15	150	2.0	2.4	148.4	77.85	<1
SLB-20-25P	M	IR1	IR2	ϕ20	25	2.0	6.7	20.6	12.98	<1
SLB-20-30P	M	IR1	IR2	ϕ20	30	2.0	5.6	26.3	15.57	<1
SLB-20-40P	M	IR1	IR2	ϕ20	40	2.0	4.6	37.0	20.76	<1
SLB-20-50P	M	IR1	IR2	ϕ20	50	2.0	4.0	47.4	25.95	<1
SLB-20-60P	M	IR1	IR2	ϕ20	60	2.0	3.6	57.6	31.14	<1
SLB-20-70P	M	IR1	IR2	ϕ20	70	2.0	3.4	67.8	36.33	<1
SLB-20-80P	M	IR1	IR2	ϕ20	80	2.0	3.2	77.9	41.52	<1
SLB-20-90P	M	IR1	IR2	ϕ20	90	2.0	3.1	88.0	46.71	<1
SLB-20-100P	M	IR1	IR2	ϕ20	100	2.0	3.0	98.0	51.90	<1
SLB-20-120P	M	IR1	IR2	ϕ20	120	2.0	2.8	118.2	62.28	<1
SLB-20-150P	M	IR1	IR2	ϕ20	150	2.0	2.6	148.3	77.85	<1
SLB-20-170P	M	IR1	IR2	ϕ20	170	2.0	2.6	168.2	88.23	<1
SLB-20-200P	M	IR1	IR2	ϕ20	200	2.0	2.5	198.4	103.8	<1
SLB-25-30P	M	IR1	IR2	ϕ25	30	2.0	8.3	24.5	15.57	<1
SLB-25-35P	M	IR1	IR2	ϕ25	35	2.0	7.0	30.4	18.17	<1
SLB-25-40P	M	IR1	IR2	ϕ25	40	2.0	6.2	36.0	20.76	<1
SLB-25-50P	M	IR1	IR2	ϕ25	50	2.0	5.2	46.6	25.95	<1
SLB-25-60P	M	IR1	IR2	ϕ25	60	2.0	4.6	57.0	31.14	<1
SLB-25-70P	M	IR1	IR2	ϕ25	70	2.0	4.2	67.2	36.33	<1
SLB-25-80P	M	IR1	IR2	ϕ25	80	2.0	3.9	77.4	41.52	<1
SLB-25-90P	M	IR1	IR2	ϕ25	90	2.0	3.7	87.6	46.71	<1
SLB-25-100P	M	IR1	IR2	ϕ25	100	2.0	3.5	97.7	51.9	<1
SLB-25-120P	M	IR1	IR2	ϕ25	120	2.0	3.3	117.8	62.28	<1
SLB-25-150P	M	IR1	IR2	ϕ25	150	2.0	3.0	148.0	77.85	<1
SLB-25-170P	M	IR1	IR2	ϕ25	170	2.0	2.9	168.1	88.23	<1
SLB-25-200P	M	IR1	IR2	ϕ25	200	2.0	2.8	198.2	103.8	<1
SLB-25-220P	M	IR1	IR2	ϕ25	220	2.0	2.7	218.2	114.18	<1
SLB-25-250P	M	IR1	IR2	ϕ25	250	2.0	2.6	248.3	129.75	<1
SLB-25.4-30P	M	IR1	IR2	ϕ25.4	30	1.7	8.3	24.5	15.57	<1
SLB-25.4-35P	M	IR1	IR2	ϕ25.4	35	1.8	7.0	30.4	18.17	<1
SLB-25.4-40P	M	IR1	IR2	ϕ25.4	40	1.9	6.2	36.0	20.76	<1
SLB-25.4-50P	M	IR1	IR2	ϕ25.4	50	1.9	5.2	46.6	25.95	<1
SLB-25.4-60P	M	IR1	IR2	ϕ25.4	60	1.9	4.6	57.0	31.14	<1
SLB-25.4-70P	M	IR1	IR2	ϕ25.4	70	1.9	4.2	67.2	36.33	<1
SLB-25.4-80P	M	IR1	IR2	ϕ25.4	80	1.9	3.9	77.4	41.52	<1
SLB-25.4-90P	M	IR1	IR2	ϕ25.4	90	1.9	3.7	87.6	46.71	<1
SLB-25.4-100P	M	IR1	IR2	ϕ25.4	100	1.9	3.5	97.7	51.90	<1
SLB-25.4-120P	M	IR1	IR2	ϕ25.4	120	2.0	3.3	117.8	62.28	<1
SLB-25.4-150P	M	IR1	IR2	ϕ25.4	150	2.0	3.0	148.0	77.85	<1
SLB-25.4-170P	M	IR1	IR2	ϕ25.4	170	2.0	2.9	168.1	88.23	<1
SLB-25.4-200P	M	IR1	IR2	ϕ25.4	200	2.0	2.8	198.2	103.80	<1
SLB-25.4-250P	M	IR1	IR2	ϕ25.4	250	2.0	2.6	248.3	129.75	<1
SLB-25.4-300P	M	IR1	IR2	ϕ25.4	300	2.0	2.5	298.4	155.70	<3
SLB-25.4-500P	M	IR1	IR2	ϕ25.4	500	2.0	2.3	498.4	259.50	<3
SLB-25.4-700P	M	IR1	IR2	ϕ25.4	700	2.0	2.2	698.5	363.30	<3
SLB-25.4-1000P	M	IR1	IR2	ϕ25.4	1000	2.0	2.2	998.5	519.00	<3

Compatible Optic Mounts

LHF-15S, -20S, -25.4S

BK7 ϕ30 – ϕ40

Uncoated	How to specify the anti-reflection coating			Diameter ϕD [mm]	Focal length f [mm]	Edge thickness te [mm]	Center thickness tc [mm]	Back focal length fb [mm]	Radius of curvature r [mm]	Centration [′]
Part Number	Visibe 400 – 700nm	Near-infrared 633 – 1064nm	Infrared 750 – 1550nm							
SLB-30-35P	M	IR1	IR2	ϕ30	35	2.0	9.9	28.5	18.17	<1
SLB-30-40P	M	IR1	IR2	ϕ30	40	2.0	8.4	34.5	20.76	<1
SLB-30-50P	M	IR1	IR2	ϕ30	50	2.0	6.8	45.5	25.95	<1
SLB-30-60P	M	IR1	IR2	ϕ30	60	2.0	5.9	56.1	31.14	<1
SLB-30-70P	M	IR1	IR2	ϕ30	70	2.0	5.2	66.5	36.33	<1
SLB-30-80P	M	IR1	IR2	ϕ30	80	2.0	4.8	76.8	41.52	<1
SLB-30-90P	M	IR1	IR2	ϕ30	90	2.0	4.5	87.1	46.71	<1
SLB-30-100P	M	IR1	IR2	ϕ30	100	2.0	4.2	97.2	51.90	<1
SLB-30-120P	M	IR1	IR2	ϕ30	120	2.0	3.8	117.5	62.28	<1
SLB-30-150P	M	IR1	IR2	ϕ30	150	2.0	3.5	147.7	77.85	<1
SLB-30-170P	M	IR1	IR2	ϕ30	170	2.0	3.3	167.8	88.23	<1
SLB-30-200P	M	IR1	IR2	ϕ30	200	2.0	3.1	198.0	103.80	<1
SLB-30-220P	M	IR1	IR2	ϕ30	220	2.0	3.0	218.0	114.18	<1
SLB-30-250P	M	IR1	IR2	ϕ30	250	2.0	2.9	248.1	129.75	<1
SLB-30-300P	M	IR1	IR2	ϕ30	300	2.0	2.7	298.2	155.70	<1
SLB-30-350P	M	IR1	IR2	ϕ30	350	2.0	2.6	348.3	181.65	<3
SLB-30-400P	M	IR1	IR2	ϕ30	400	2.0	2.5	398.2	207.60	<3
SLB-30-450P	M	IR1	IR2	ϕ30	450	2.0	2.5	448.4	233.55	<3
SLB-30-500P	M	IR1	IR2	ϕ30	500	2.0	2.4	498.4	259.50	<3
SLB-30-600P	M	IR1	IR2	ϕ30	600	2.0	2.4	598.4	311.40	<3
SLB-30-700P	M	IR1	IR2	ϕ30	700	2.0	2.3	698.5	363.30	<3
SLB-30-800P	M	IR1	IR2	ϕ30	800	2.0	2.3	798.5	415.20	<3
SLB-30-900P	M	IR1	IR2	ϕ30	900	2.0	2.2	898.5	467.10	<3
SLB-30-1000P	M	IR1	IR2	ϕ30	1000	2.0	2.2	998.5	519.00	<3
SLB-30-1200P	M	IR1	IR2	ϕ30	1200	2.0	2.2	1198.6	622.80	<3
SLB-30-1500P	M	IR1	IR2	ϕ30	1500	2.0	2.1	1498.6	778.50	<3
SLB-30-2000P	M	IR1	IR2	ϕ30	2000	2.0	2.1	1998.6	1038.00	<3
SLB-30-2500P	M	IR1	IR2	ϕ30	2500	2.0	2.1	2498.6	1297.50	<3
SLB-30-3000P	M	IR1	IR2	ϕ30	3000	2.0	2.1	2998.6	1557	<3
SLB-30-4000P	M	IR1	IR2	ϕ30	4000	2.0	2.1	3998.6	2076	<3
SLB-30-5000P	M	IR1	IR2	ϕ30	5000	2.0	2.1	4998.6	2595	<3
SLB-40-50P	M	IR1	IR2	ϕ40	50	2.0	11.4	42.5	25.95	<1
SLB-40-60P	M	IR1	IR2	ϕ40	60	2.0	9.3	53.9	31.14	<1
SLB-40-70P	M	IR1	IR2	ϕ40	70	2.0	8.0	64.7	36.33	<1
SLB-40-80P	M	IR1	IR2	ϕ40	80	2.0	7.1	75.3	41.52	<1
SLB-40-90P	M	IR1	IR2	ϕ40	90	2.0	6.5	85.7	46.71	<1
SLB-40-100P	M	IR1	IR2	ϕ40	100	2.0	6.0	96.0	51.90	<1
SLB-40-120P	M	IR1	IR2	ϕ40	120	2.0	5.3	116.5	62.28	<1
SLB-40-150P	M	IR1	IR2	ϕ40	150	2.0	4.6	147.0	77.85	<1
SLB-40-170P	M	IR1	IR2	ϕ40	170	2.0	4.3	167.2	88.23	<1
SLB-40-200P	M	IR1	IR2	ϕ40	200	2.0	3.9	197.4	103.80	<1
SLB-40-250P	M	IR1	IR2	ϕ40	250	2.0	3.6	247.7	129.75	<1
SLB-40-300P	M	IR1	IR2	ϕ40	300	2.0	3.3	297.7	155.70	<1
SLB-40-350P	M	IR1	IR2	ϕ40	350	2.0	3.1	348.0	181.65	<1
SLB-40-400P	M	IR1	IR2	ϕ40	400	2.0	3.0	398.0	207.60	<1
SLB-40-450P	M	IR1	IR2	ϕ40	450	2.0	2.9	448.1	233.55	<3
SLB-40-500P	M	IR1	IR2	ϕ40	500	2.0	2.8	498.2	259.50	<3
SLB-40-1000P	M	IR1	IR2	ϕ40	1000	2.0	2.4	998.4	519.00	<3

Compatible Optic Mounts

LHF-30S, -40S

Plano Convex Lenses | SLB-P/SLSQ-P/SLSQK-P

Catalog Code W3044

BK7 ϕ50 – ϕ60

Uncoated	How to specify the anti-reflection coating			Diameter ϕD [mm]	Focal length f [mm]	Edge thickness te [mm]	Center thickness tc [mm]	Back focal length fb [mm]	Radius of curvature r [mm]	Centration [′]
Part Number	Visibe 400 – 700nm	Near-infrared 633 – 1064nm	Infrared 750 – 1550nm							
SLB-50-70P	M	IR1	IR2	ϕ50	70	3.0	13.0	61.5	36.33	<1
SLB-50-80P	M	IR1	IR2	ϕ50	80	3.0	11.4	72.5	41.52	<1
SLB-50-90P	M	IR1	IR2	ϕ50	90	3.0	10.3	83.2	46.71	<1
SLB-50-100P	M	IR1	IR2	ϕ50	100	3.0	9.4	93.8	51.90	<1
SLB-50-120P	M	IR1	IR2	ϕ50	120	3.0	8.2	114.6	62.28	<1
SLB-50-150P	M	IR1	IR2	ϕ50	150	3.0	7.1	145.3	77.85	<1
SLB-50-170P	M	IR1	IR2	ϕ50	170	3.0	6.6	165.6	88.23	<1
SLB-50-200P	M	IR1	IR2	ϕ50	200	3.0	6.1	196.0	103.80	<1
SLB-50-220P	M	IR1	IR2	ϕ50	220	3.0	5.8	216.2	114.18	<1
SLB-50-250P	M	IR1	IR2	ϕ50	250	3.0	5.4	246.4	129.75	<1
SLB-50-300P	M	IR1	IR2	ϕ50	300	3.0	5.0	296.7	155.70	<1
SLB-50-350P	M	IR1	IR2	ϕ50	350	3.0	4.7	346.9	181.65	<1
SLB-50-400P	M	IR1	IR2	ϕ50	400	3.0	4.5	397.0	207.60	<1
SLB-50-450P	M	IR1	IR2	ϕ50	450	3.0	4.3	447.1	233.55	<1
SLB-50-500P	M	IR1	IR2	ϕ50	500	3.0	4.2	497.2	259.50	<1
SLB-50-600P	M	IR1	IR2	ϕ50	600	3.0	4.0	597.4	311.40	<3
SLB-50-700P	M	IR1	IR2	ϕ50	700	3.0	3.9	697.5	363.30	<3
SLB-50-800P	M	IR1	IR2	ϕ50	800	3.0	3.8	797.4	415.20	<3
SLB-50-900P	M	IR1	IR2	ϕ50	900	3.0	3.7	897.6	467.10	<3
SLB-50-1000P	M	IR1	IR2	ϕ50	1000	3.0	3.6	997.6	519.00	<3
SLB-50-1200P	M	IR1	IR2	ϕ50	1200	3.0	3.5	1197.7	622.80	<3
SLB-50-1500P	M	IR1	IR2	ϕ50	1500	3.0	3.4	1497.8	778.50	<3
SLB-50-2000P	M	IR1	IR2	ϕ50	2000	3.0	3.3	1997.8	1038.00	<3
SLB-50-2500P	M	IR1	IR2	ϕ50	2500	3.0	3.2	2497.9	1297.5	<3
SLB-50-3000P	M	IR1	IR2	ϕ50	3000	3.0	3.2	2997.9	1557.00	<3
SLB-50-4000P	M	IR1	IR2	ϕ50	4000	3.0	3.2	3997.9	2076.00	<3
SLB-50-5000P	M	IR1	IR2	ϕ50	5000	3.0	3.1	4997.9	2595.00	<3
SLB-50.8-70P	M	IR1	IR2	ϕ50.8	70	3.0	13.4	61.2	36.33	<1
SLB-50.8-80P	M	IR1	IR2	ϕ50.8	80	3.0	11.7	72.3	41.52	<1
SLB-50.8-90P	M	IR1	IR2	ϕ50.8	90	3.0	10.3	83.2	46.71	<1
SLB-50.8-100P	M	IR1	IR2	ϕ50.8	100	3.0	9.6	93.7	51.90	<1
SLB-50.8-120P	M	IR1	IR2	ϕ50.8	120	2.8	8.2	114.6	62.28	<1
SLB-50.8-150P	M	IR1	IR2	ϕ50.8	150	2.8	7.1	145.3	77.85	<1
SLB-50.8-170P	M	IR1	IR2	ϕ50.8	170	3.0	6.6	165.7	88.23	<1
SLB-50.8-200P	M	IR1	IR2	ϕ50.8	200	2.9	6.1	196.0	103.8	<1
SLB-50.8-250P	M	IR1	IR2	ϕ50.8	250	2.9	5.4	246.4	129.75	<1
SLB-50.8-300P	M	IR1	IR2	ϕ50.8	300	2.9	5.0	296.7	155.70	<1
SLB-50.8-400P	M	IR1	IR2	ϕ50.8	400	3.0	4.5	397.0	207.60	<1
SLB-50.8-500P	M	IR1	IR2	ϕ50.8	500	3.0	4.2	497.2	259.50	<1
SLB-50.8-700P	M	IR1	IR2	ϕ50.8	700	3.0	3.9	697.4	363.30	<3
SLB-50.8-1000P	M	IR1	IR2	ϕ50.8	1000	3.0	3.6	997.6	519.00	<3
SLB-60-70P	M	IR1	IR2	ϕ60	70	3.0	18.8	57.6	36.33	<1
SLB-60-80P	M	IR1	IR2	ϕ60	80	3.0	15.8	69.6	41.52	<1
SLB-60-90P	M	IR1	IR2	ϕ60	90	3.0	13.9	80.8	46.71	<1
SLB-60-100P	M	IR1	IR2	ϕ60	100	3.0	12.5	91.7	51.90	<1
SLB-60-120P	M	IR1	IR2	ϕ60	120	3.0	10.7	113.0	62.28	<1
SLB-60-150P	M	IR1	IR2	ϕ60	150	3.0	9.0	144.1	77.85	<1
SLB-60-170P	M	IR1	IR2	ϕ60	170	3.0	8.3	164.6	88.23	<1
SLB-60-200P	M	IR1	IR2	ϕ60	200	3.0	7.4	195.1	103.80	<1
SLB-60-250P	M	IR1	IR2	ϕ60	250	3	6.5	245.7	129.75	<1
SLB-60-300P	M	IR1	IR2	ϕ60	300	3.0	5.9	296.1	155.70	<1
SLB-60-400P	M	IR1	IR2	ϕ60	400	3.0	5.2	396.6	207.60	<1
SLB-60-500P	M	IR1	IR2	ϕ60	500	3.0	4.7	496.9	259.50	<1
SLB-60-1000P	M	IR1	IR2	ϕ60	1000	3.0	3.9	997.5	519.00	<3

Compatible Optic Mounts

LHF-50S, -50.8S, -60AS

BK7 ϕ80 – ϕ100

Uncoated	How to specify the anti-reflection coating			Diameter ϕD [mm]	Focal length f [mm]	Edge thickness te [mm]	Center thickness tc [mm]	Back focal length fb [mm]	Radius of curvature r [mm]	Centration [′]
Part Number	Visibe 400 – 700nm	Near-infrared 633 – 1064nm	Infrared 750 – 1550nm							
SLB-80-100P	M	IR1	IR2	ϕ80	100	3.0	21.8	85.6	51.90	<1
SLB-80-150P	M	IR1	IR2	ϕ80	150	3.0	14.1	140.8	77.85	<1
SLB-80-200P	M	IR1	IR2	ϕ80	200	3.0	11.0	192.7	103.80	<1
SLB-80-250P	M	IR1	IR2	ϕ80	250	3.0	9.3	243.9	129.75	<1
SLB-80-300P	M	IR1	IR2	ϕ80	300	3.0	8.2	294.6	155.70	<1
SLB-80-350P	M	IR1	IR2	ϕ80	350	3.0	7.5	345.1	181.65	<1
SLB-80-400P	M	IR1	IR2	ϕ80	400	3.0	6.9	395.5	207.60	<1
SLB-80-500P	M	IR1	IR2	ϕ80	500	3.0	6.1	496.0	259.50	<1
SLB-80-700P	M	IR1	IR2	ϕ80	700	3.0	5.2	696.6	363.30	<1
SLB-80-800P	M	IR1	IR2	ϕ80	800	3.0	4.9	796.8	415.20	<1
SLB-80-1000P	M	IR1	IR2	ϕ80	1000	3.0	4.5	997.0	519.00	<3
SLB-100-150P	M	IR1	IR2	ϕ100	150	3.0	21.2	136.1	77.85	<1
SLB-100-200P	M	IR1	IR2	ϕ100	200	3.0	15.8	189.6	103.80	<1
SLB-100-250P	M	IR1	IR2	ϕ100	250	3.0	13.0	241.4	129.75	<1
SLB-100-300P	M	IR1	IR2	ϕ100	300	3.0	11.2	292.6	155.70	<1
SLB-100-350P	M	IR1	IR2	ϕ100	350	3.0	10.0	343.4	181.65	<1
SLB-100-400P	M	IR1	IR2	ϕ100	400	3.0	9.1	394.4	207.60	<1
SLB-100-500P	M	IR1	IR2	ϕ100	500	3.0	7.9	494.8	259.50	<1
SLB-100-600P	M	IR1	IR2	ϕ100	600	3.0	7.0	595.4	311.40	<1
SLB-100-700P	M	IR1	IR2	ϕ100	700	3.0	6.5	695.7	363.30	<1
SLB-100-800P	M	IR1	IR2	ϕ100	800	3.0	6.0	796.0	415.20	<1
SLB-100-1000P	M	IR1	IR2	ϕ100	1000	3.0	5.4	996.4	519.00	<1

Compatible Optic Mounts

LHF-80, -100

Plano Convex Lenses | SLB-P/SLSQ-P/SLSQK-P

Catalog Code W3045

Synthetic fused silica ϕ5 – ϕ20

Part Number	Diameter ϕD [mm]	Focal length f [mm]	Edge thickness te [mm]	Center thickness tc [mm]	Back focal length fb [mm]	Radius of curvature r [mm]	Centration [′]
SLSQ-05-08P	ϕ5	8	1.6	2.5	6.3	3.68	<3
SLSQ-05-09P	ϕ5	9	1.4	2.3	7.6	4.14	<3
SLSQ-05-10P	ϕ5	10	1.4	2.1	8.6	4.60	<3
SLSQ-05-12P	ϕ5	12	1.3	1.9	10.7	5.52	<3
SLSQ-05-15P	ϕ5	15	1.2	1.7	13.8	6.90	<3
SLSQ-05-20P	ϕ5	20	1.2	1.5	19.0	9.20	<3
SLSQ-05-30P	ϕ5	30	1.1	1.3	29.1	13.80	<3
SLSQ-06-08P	ϕ6	8	1.0	2.5	6.3	3.68	<3
SLSQ-06-10P	ϕ6	10	1.0	2.1	8.6	4.60	<3
SLSQ-06-12P	ϕ6	12	1.0	1.9	10.7	5.52	<3
SLSQ-06-15P	ϕ6	15	1.0	1.7	13.8	6.90	<3
SLSQ-06-20P	ϕ6	20	1.0	1.5	19.0	9.20	<3
SLSQ-06-25P	ϕ6	25	1.0	1.4	24.0	11.50	<3
SLSQ-06-30P	ϕ6	30	1.0	1.3	29.1	13.80	<3
SLSQ-07-10P	ϕ7	10	2.2	3.8	7.4	4.60	<3
SLSQ-07-12P	ϕ7	12	2.0	3.2	9.8	5.52	<3
SLSQ-07-15P	ϕ7	15	1.8	2.8	13.1	6.90	<3
SLSQ-07-20P	ϕ7	20	1.7	2.4	18.3	9.20	<3
SLSQ-07-30P	ϕ7	30	1.6	2.1	28.6	13.80	<3
SLSQ-07-40P	ϕ7	40	1.6	1.9	38.7	18.40	<3
SLSQ-07-50P	ϕ7	50	1.6	1.9	48.7	23.00	<3
SLSQ-08-10P	ϕ8	10	1.5	3.8	7.4	4.60	<3
SLSQ-08-12P	ϕ8	12	1.5	3.2	9.8	5.52	<3
SLSQ-08-15P	ϕ8	15	1.5	2.8	13.1	6.90	<3
SLSQ-08-20P	ϕ8	20	1.5	2.4	18.3	9.20	<3
SLSQ-08-25P	ϕ8	25	1.5	2.2	23.5	11.50	<3
SLSQ-08-30P	ϕ8	30	1.5	2.1	28.6	13.80	<3
SLSQ-10-15P	ϕ10	15	2.0	4.1	12.2	6.90	<1
SLSQ-10-20P	ϕ10	20	2.0	3.5	17.6	9.20	<1
SLSQ-10-25P	ϕ10	25	2.0	3.1	22.8	11.50	<1
SLSQ-10-30P	ϕ10	30	2.0	2.9	28.0	13.80	<1
SLSQ-10-40P	ϕ10	40	2.0	2.7	38.2	18.40	<1
SLSQ-10-50P	ϕ10	50	2.0	2.6	48.3	23.00	<1
SLSQ-10-60P	ϕ10	60	2.0	2.5	58.3	27.60	<1
SLSQ-10-70P	ϕ10	70	2.0	2.4	68.4	32.20	<1
SLSQ-10-80P	ϕ10	80	2.0	2.3	78.4	36.80	<1
SLSQ-10-100P	ϕ10	100	2.0	2.3	98.4	46.00	<1
SLSQ-12.7-15P	ϕ12.7	15	2.0	6.2	10.8	6.90	<1
SLSQ-12.7-20P	ϕ12.7	20	2.0	4.5	16.9	9.20	<1
SLSQ-12.7-25P	ϕ12.7	25	2.0	3.9	22.3	11.50	<1
SLSQ-12.7-40P	ϕ12.7	40	2.0	3.1	37.9	18.40	<1
SLSQ-12.7-50P	ϕ12.7	50	2.0	2.9	18.0	23.00	<1
SLSQ-15-20P	ϕ15	20	2.0	5.9	16.0	9.20	<1
SLSQ-15-25P	ϕ15	25	2.0	4.8	21.7	11.50	<1
SLSQ-15-30P	ϕ15	30	2.0	4.2	27.1	13.80	<1
SLSQ-15-40P	ϕ15	40	2.0	3.6	37.5	18.40	<1
SLSQ-15-50P	ϕ15	50	2.0	3.3	47.8	23.00	<1
SLSQ-15-60P	ϕ15	60	2.0	3.0	57.9	27.60	<1
SLSQ-15-70P	ϕ15	70	2.0	2.9	68.0	32.20	<1
SLSQ-15-80P	ϕ15	80	2.0	2.8	78.1	36.80	<1
SLSQ-15-90P	ϕ15	90	2.0	2.7	88.2	41.40	<1
SLSQ-15-100P	ϕ15	100	2.0	2.6	98.3	46.00	<1
SLSQ-20-25P	ϕ20	25	2.0	7.8	19.6	11.50	<1
SLSQ-20-30P	ϕ20	30	2.0	6.3	25.7	13.80	<1
SLSQ-20-40P	ϕ20	40	2.0	5.0	36.6	18.40	<1
SLSQ-20-50P	ϕ20	50	2.0	4.3	47.1	23.00	<1
SLSQ-20-60P	ϕ20	60	2.0	3.9	57.3	27.60	<1
SLSQ-20-70P	ϕ20	70	2.0	3.6	67.5	32.20	<1
SLSQ-20-80P	ϕ20	80	2.0	3.4	77.7	36.80	<1
SLSQ-20-90P	ϕ20	90	2.0	3.2	87.8	41.40	<1
SLSQ-20-100P	ϕ20	100	2.0	3.1	97.9	46.00	<1
SLSQ-20-120P	ϕ20	120	2.0	2.9	118.0	55.20	<1
SLSQ-20-150P	ϕ20	150	2.0	2.7	148.1	69.00	<1
SLSQ-20-170P	ϕ20	170	2.0	2.6	168.2	78.20	<1
SLSQ-20-200P	ϕ20	200	2.0	2.5	198.3	92.00	<1

Compatible Optic Mounts

LHF-10S, -15S, -20S / MLH-10, -15 / LHF-12.7

Synthetic fused silica ϕ25 – ϕ30

Part Number	Diameter ϕD [mm]	Focal length f [mm]	Edge thickness te [mm]	Center thickness tc [mm]	Back focal length fb [mm]	Radius of curvature r [mm]	Centration [′]
SLSQ-25-30P	ϕ25	30	2.0	10.0	23.2	13.80	<1
SLSQ-25-35P	ϕ25	35	2.0	8.0	29.6	16.10	<1
SLSQ-25-40P	ϕ25	40	2.0	6.9	35.3	18.40	<1
SLSQ-25-50P	ϕ25	50	2.0	5.7	46.1	23.00	<1
SLSQ-25-60P	ϕ25	60	2.0	5.0	56.6	27.60	<1
SLSQ-25-70P	ϕ25	70	2.0	4.5	66.9	32.20	<1
SLSQ-25-80P	ϕ25	80	2.0	4.2	77.1	36.80	<1
SLSQ-25-90P	ϕ25	90	2.0	3.9	87.3	41.40	<1
SLSQ-25-100P	ϕ25	100	2.0	3.7	97.4	46.00	<1
SLSQ-25-120P	ϕ25	120	2.0	3.4	117.6	55.20	<1
SLSQ-25-150P	ϕ25	150	2.0	3.1	147.8	69.00	<1
SLSQ-25-170P	ϕ25	170	2.0	3.0	167.9	78.20	<1
SLSQ-25-200P	ϕ25	200	2.0	2.9	198.0	92.00	<1
SLSQ-25-220P	ϕ25	220	2.0	2.8	218.1	101.20	<1
SLSQ-25-250P	ϕ25	250	2.0	2.7	248.2	115.00	<1
SLSQ-25.4-30P	ϕ25.4	30	1.6	10.0	23.2	13.80	<1
SLSQ-25.4-35P	ϕ25.4	35	1.8	8.0	29.5	16.10	<1
SLSQ-25.4-40P	ϕ25.4	40	1.8	6.9	35.3	18.40	<1
SLSQ-25.4-50P	ϕ25.4	50	1.9	5.7	46.1	23.00	<1
SLSQ-25.4-60P	ϕ25.4	60	1.9	5.0	56.6	27.60	<1
SLSQ-25.4-70P	ϕ25.4	70	1.9	4.5	66.9	32.20	<1
SLSQ-25.4-80P	ϕ25.4	80	1.9	4.2	77.1	36.80	<1
SLSQ-25.4-90P	ϕ25.4	90	1.9	3.9	87.3	41.40	<1
SLSQ-25.4-100P	ϕ25.4	100	1.9	3.7	97.5	46.00	<1
SLSQ-25.4-150P	ϕ25.4	150	1.9	3.1	147.9	69.00	<1
SLSQ-25.4-200P	ϕ25.4	200	1.9	2.9	198.0	92.00	<1
SLSQ-25.4-250P	ϕ25.4	250	1.9	2.7	248.2	115.00	<1
SLSQ-25.4-300P	ϕ25.4	300	1.9	2.5	298.3	138.00	<3
SLSQ-25.4-400P	ϕ25.4	400	1.9	2.3	398.4	184.00	<3
SLSQ-25.4-500P	ϕ25.4	500	1.9	2.3	498.0	230.00	<3
SLSQ-25.4-1000P	ϕ25.4	1000	1.9	2.1	998.6	460.00	<3
SLSQ-30-35P	ϕ30	35	2.0	12.3	26.6	16.10	<1
SLSQ-30-40P	ϕ30	40	2.0	9.7	33.3	18.40	<1
SLSQ-30-50P	ϕ30	50	2.0	7.6	44.8	23.00	<1
SLSQ-30-60P	ϕ30	60	2.0	6.4	55.6	27.60	<1
SLSQ-30-70P	ϕ30	70	2.0	5.7	66.1	32.20	<1
SLSQ-30-80P	ϕ30	80	2.0	5.2	76.4	36.80	<1
SLSQ-30-90P	ϕ30	90	2.0	4.8	86.7	41.40	<1
SLSQ-30-100P	ϕ30	100	2.0	4.5	96.9	46.00	<1
SLSQ-30-120P	ϕ30	120	2.0	4.1	117.2	55.20	<1
SLSQ-30-150P	ϕ30	150	2.0	3.7	147.5	69.00	<1
SLSQ-30-170P	ϕ30	170	2.0	3.5	167.6	78.20	<1
SLSQ-30-200P	ϕ30	200	2.0	3.2	197.8	92.00	<1
SLSQ-30-220P	ϕ30	220	2.0	3.1	217.9	101.20	<1
SLSQ-30-250P	ϕ30	250	2.0	3.0	248.0	115.00	<1
SLSQ-30-300P	ϕ30	300	2.0	2.8	298.1	138.00	<1
SLSQ-30-350P	ϕ30	350	2.0	2.7	348.2	161.00	<3
SLSQ-30-400P	ϕ30	400	2.0	2.6	398.2	184.00	<3
SLSQ-30-450P	ϕ30	450	2.0	2.5	448.3	207.00	<3
SLSQ-30-500P	ϕ30	500	2.0	2.5	498.3	230.00	<3
SLSQ-30-600P	ϕ30	600	2.0	2.4	598.4	276.00	<3
SLSQ-30-700P	ϕ30	700	2.0	2.4	698.4	322.00	<3
SLSQ-30-800P	ϕ30	800	2.0	2.3	798.4	368.00	<3
SLSQ-30-900P	ϕ30	900	2.0	2.3	898.4	414.00	<3
SLSQ-30-1000P	ϕ30	1000	2.0	2.2	998.5	460.00	<3
SLSQ-30-1200P	ϕ30	1200	2.0	2.2	1198.5	552.00	<3
SLSQ-30-1500P	ϕ30	1500	2.0	2.2	1498.5	690.00	<3
SLSQ-30-2000P	ϕ30	2000	2.0	2.1	1998.5	920.00	<3
SLSQ-30-2500P	ϕ30	2500	2.0	2.1	2498.6	1150.00	<3
SLSQ-30-3000P	ϕ30	3000	2.0	2.1	2998.6	1380.00	<3
SLSQ-30-4000P	ϕ30	4000	2.0	2.1	3998.6	1840.00	<3
SLSQ-30-5000P	ϕ30	5000	2.0	2.1	4998.6	2300.00	<3

Compatible Optic Mounts

LHF-25S, -25.4S, -30S

Plano Convex Lenses | SLB-P/SLSQ-P/SLSQK-P

Catalog Code W3047

Synthetic fused silica ϕ40 – ϕ50.8

Part Number	Diameter ϕD [mm]	Focal length f [mm]	Edge thickness te [mm]	Center thickness tc [mm]	Back focal length fb [mm]	Radius of curvature r [mm]	Centration [′]
SLSQ-40-50P	ϕ40	50	2.0	13.6	40.7	23.00	<1
SLSQ-40-60P	ϕ40	60	2.0	10.6	52.8	27.60	<1
SLSQ-40-70P	ϕ40	70	2.0	9.0	63.9	32.20	<1
SLSQ-40-80P	ϕ40	80	2.0	7.9	74.6	36.80	<1
SLSQ-40-90P	ϕ40	90	2.0	7.2	85.1	41.40	<1
SLSQ-40-100P	ϕ40	100	2.0	6.6	95.5	46.00	<1
SLSQ-40-120P	ϕ40	120	2.0	5.8	116.1	55.20	<1
SLSQ-40-150P	ϕ40	150	2.0	5.0	146.6	69.00	<1
SLSQ-40-170P	ϕ40	170	2.0	4.6	166.8	78.20	<1
SLSQ-40-200P	ϕ40	200	2.0	4.2	197.1	92.00	<1
SLSQ-40-220P	ϕ40	220	2.0	4.0	217.3	101.20	<1
SLSQ-40-250P	ϕ40	250	2.0	3.8	247.4	115.00	<1
SLSQ-40-300P	ϕ40	300	2.0	3.5	297.6	138.00	<1
SLSQ-40-350P	ϕ40	350	2.0	3.2	347.8	161.00	<1
SLSQ-40-400P	ϕ40	400	2.0	3.1	397.9	184.00	<1
SLSQ-40-450P	ϕ40	450	2.0	3.0	448.0	207.00	<3
SLSQ-40-500P	ϕ40	500	2.0	2.9	498.0	230.00	<3
SLSQ-50-70P	ϕ50	70	3.0	14.9	59.8	32.20	<1
SLSQ-50-80P	ϕ50	80	3.0	12.8	71.2	36.80	<1
SLSQ-50-90P	ϕ50	90	3.0	11.4	82.2	41.40	<1
SLSQ-50-100P	ϕ50	100	3.0	10.4	92.9	46.00	<1
SLSQ-50-120P	ϕ50	120	3.0	9.0	113.8	55.20	<1
SLSQ-50-150P	ϕ50	150	3.0	7.7	144.7	69.00	<1
SLSQ-50-170P	ϕ50	170	3.0	7.1	165.1	78.20	<1
SLSQ-50-200P	ϕ50	200	3.0	6.5	195.6	92.00	<1
SLSQ-50-220P	ϕ50	220	3.0	6.1	215.8	101.20	<1
SLSQ-50-250P	ϕ50	250	3.0	5.8	246.1	115.00	<1
SLSQ-50-300P	ϕ50	300	3.0	5.3	296.4	138.00	<1
SLSQ-50-350P	ϕ50	350	3.0	5.0	346.6	161.00	<1
SLSQ-50-400P	ϕ50	400	3.0	4.7	396.8	184.00	<1
SLSQ-50-450P	ϕ50	450	3.0	4.5	446.9	207.00	<1
SLSQ-50-500P	ϕ50	500	3.0	4.4	497.0	230.00	<1
SLSQ-50-600P	ϕ50	600	3.0	4.1	597.2	276.00	<3
SLSQ-50-700P	ϕ50	700	3.0	4.0	697.3	322.00	<3
SLSQ-50-800P	ϕ50	800	3.0	3.9	797.4	368.00	<3
SLSQ-50-900P	ϕ50	900	3.0	3.8	897.4	414.00	<3
SLSQ-50-1000P	ϕ50	1000	3.0	3.7	997.5	460.00	<3
SLSQ-50-1200P	ϕ50	1200	3.0	3.6	1197.6	552.00	<3
SLSQ-50-1500P	ϕ50	1500	3.0	3.5	1497.6	690.00	<3
SLSQ-50-2000P	ϕ50	2000	3.0	3.3	1997.7	920.00	<3
SLSQ-50-2500P	ϕ50	2500	3.0	3.3	2497.8	1150.00	<3
SLSQ-50-3000P	ϕ50	3000	3.0	3.2	2997.8	1380.00	<3
SLSQ-50-4000P	ϕ50	4000	3.0	3.2	3997.8	1840.00	<3
SLSQ-50-5000P	ϕ50	5000	3.0	3.1	4997.9	2300.00	<3
SLSQ-50.8-70P	ϕ50.8	70	2.5	14.9	59.8	32.20	<1
SLSQ-50.8-80P	ϕ50.8	80	2.6	12.8	71.2	36.80	<1
SLSQ-50.8-90P	ϕ50.8	90	2.7	11.4	82.2	41.40	<1
SLSQ-50.8-100P	ϕ50.8	100	2.8	10.4	92.9	46.00	<1
SLSQ-50.8-120P	ϕ50.8	120	2.8	9.0	113.8	55.20	<1
SLSQ-50.8-150P	ϕ50.8	150	2.9	7.7	144.7	69.00	<1
SLSQ-50.8-170P	ϕ50.8	170	2.9	7.1	165.1	78.20	<1
SLSQ-50.8-200P	ϕ50.8	200	2.9	6.5	195.6	92.00	<1
SLSQ-50.8-250P	ϕ50.8	250	2.9	5.7	246.1	115.00	<1
SLSQ-50.8-300P	ϕ50.8	300	2.9	5.3	296.4	138.00	<1
SLSQ-50.8-400P	ϕ50.8	400	2.9	4.7	396.8	184.00	<1
SLSQ-50.8-500P	ϕ50.8	500	3.0	4.4	497.0	230.00	<1
SLSQ-50.8-1000P	ϕ50.8	1000	3.0	3.7	997.5	460.00	<3

Compatible Optic Mounts

LHF-40S, -50S, -50.8S

Synthetic fused silica ϕ60 – ϕ100

Part Number	Diameter ϕD [mm]	Focal length f [mm]	Edge thickness te [mm]	Center thickness tc [mm]	Back focal length fb [mm]	Radius of curvature r [mm]	Centration [′]
SLSQ-60-80P	ϕ60	80	3.0	18.5	67.3	36.80	<1
SLSQ-60-90P	ϕ60	90	3.0	15.9	79.1	41.40	<1
SLSQ-60-100P	ϕ60	100	3.0	14.1	90.3	46.00	<1
SLSQ-60-120P	ϕ60	120	3.0	11.9	111.9	55.20	<1
SLSQ-60-150P	ϕ60	150	3.0	9.9	143.2	69.00	<1
SLSQ-60-170P	ϕ60	170	3.0	9.0	163.8	78.20	<1
SLSQ-60-200P	ϕ60	200	3.0	8.0	194.5	92.00	<1
SLSQ-60-220P	ϕ60	220	3.0	7.5	214.8	101.20	<1
SLSQ-60-250P	ϕ60	250	3.0	7.0	245.2	115.00	<1
SLSQ-60-300P	ϕ60	300	3.0	6.3	295.7	138.00	<1
SLSQ-60-350P	ϕ60	350	3.0	5.8	346.0	161.00	<1
SLSQ-60-400P	ϕ60	400	3.0	5.5	396.3	184.00	<1
SLSQ-60-450P	ϕ60	450	3.0	5.2	446.5	207.00	<1
SLSQ-60-500P	ϕ60	500	3.0	5.0	496.6	230.00	<1
SLSQ-100-200P	ϕ100	200	3.0	17.8	187.8	92.00	<1
SLSQ-100-250P	ϕ100	250	3.0	14.4	240.1	115.00	<1
SLSQ-100-300P	ϕ100	300	3.0	12.4	291.5	138.00	<1
SLSQ-100-350P	ϕ100	350	3.0	11.0	342.5	161.00	<1
SLSQ-100-400P	ϕ100	400	3.0	9.9	393.2	184.00	<1
SLSQ-100-500P	ϕ100	500	3.0	8.5	494.2	230.00	<1
SLSQ-100-600P	ϕ100	600	3.0	7.6	594.8	276.00	<1
SLSQ-100-700P	ϕ100	700	3.0	6.9	695.3	322.00	<1
SLSQ-100-800P	ϕ100	800	3.0	6.4	795.6	368.00	<1
SLSQ-100-1000P	ϕ100	1000	3.0	5.7	995.1	460.00	<1

Synthetic fused silica for Excimer Laser ϕ30, ϕ50

Part Number	Diameter ϕD [mm]	Focal length f [mm]	Edge thickness te [mm]	Center thickness tc [mm]	Back focal length fb [mm]	Radius of curvature r [mm]	Centration [′]
SLSQK-30-40P	ϕ30	40	2.0	9.7	33.3	18.40	<1
SLSQK-30-50P	ϕ30	50	2.0	7.6	44.8	23.00	<1
SLSQK-30-60P	ϕ30	60	2.0	6.4	55.6	27.60	<1
SLSQK-30-80P	ϕ30	80	2.0	5.2	76.4	36.80	<1
SLSQK-30-100P	ϕ30	100	2.0	4.5	96.9	46.00	<1
SLSQK-30-150P	ϕ30	150	2.0	3.7	147.5	69.00	<1
SLSQK-30-200P	ϕ30	200	2.0	3.2	197.8	92.00	<1
SLSQK-30-300P	ϕ30	300	2.0	2.8	298.1	138.00	<1
SLSQK-50-70P	ϕ50	70	3.0	14.9	59.8	32.20	<1
SLSQK-50-100P	ϕ50	100	3.0	10.4	92.9	46.00	<1
SLSQK-50-150P	ϕ50	150	3.0	7.7	144.7	69.00	<1
SLSQK-50-200P	ϕ50	200	3.0	6.5	195.6	92.00	<1
SLSQK-50-300P	ϕ50	300	3.0	5.3	296.4	138.00	<1
SLSQK-50-400P	ϕ50	400	3.0	4.7	396.8	184.00	<1
SLSQK-50-500P	ϕ50	500	3.0	4.4	497.0	230.00	<1

Compatible Optic Mounts

LHF-60AS, -100 / LHF-30S, -50S

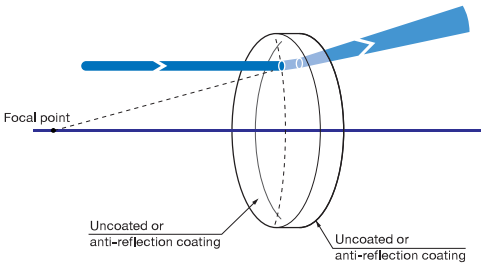
Plano Concave Lenses | SLB-N/SLSQ-N/SLSQK-N

RoHS

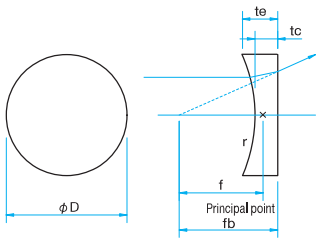
These simple negative lenses have many uses. Alone they form a virtual image of a distant object or collimated light source. Used in combination with other optics they reduce the power of the system. Sharp edges which are common in negative lenses are removed by beveling in order to reduce the likelihood of chipping.

- There are three types of plano concave lenses available; BK7 for use in visible range to infrared wavelength range, synthetic fused silica for wavelengths less than 350nm ultraviolet light, and synthetic fused silica lens for excimer laser wavelenghts such as KrF (248nm) and ArF (193nm).
- BK7 lenses are also available with three types of anti-reflection coatings, visible wavelength range, in the near-infrared range and in the infrared range.
- Our lenses are listed by outside diameter and focal length to assist your selection according to required specifications.

Schematic



Outline Drawing (in mm)



●Tolerance
Diameter $\phi D^{0}_{-0.1}$
Thickness tc±0.15
Focal length ±1%

Specifications

Material	SLB: BK7 SLSQ: Synthetic fused silica SLSQK: Synthetic fused silica for Excimer Laser
Design wavelength	546.1nm
Refractive index	BK7: n_e=1.519 Synthetic fused silica: n_e=1.460
Coating	Uncoated: the end of the part number 'N' Anti-reflection coating: the end of the part number 'NM', 'NIR1', 'NIR2'
Laser Damage Threshold	Anti-reflection coating: 4J/cm^2 Laser pulse with 10ns, repetition frequency 20Hz
Clear aperture	90% of actual aperture (Uncoated) 85% of actual aperture (BMAR)
Surface Quality (Scratch–Dig)	20–10

Guide

- Lenses are available in a large selection and in custom sizes and focal lengths.
- In addition to our standard coating we offer custom anti-reflective coating at specific wavelengths.

Attention

- Plano concave lenses are negative lenses that diverge collimated incident light and are primarily used in conjunction with plano convex lenses to shape beams.
- The plano-concave lens has chromatic aberration, the focal length will vary depending on the wavelength. Please check the "data wavelength characteristic of the focal length" on the WEB of the focal length of each wavelength. WEB Reference Catalog Code W3050
- The plano concave lenses are designed for parallel light to be incident to the concave surface.
- Transmissions losses due to reflection off the front and rear surfaces of the lens can be minimized by coating the surfaces. Consult our Sales Division for anti-reflection coatings suitable for your application.
- Sharpe edges are common in negative lenses are removed by beveling in order to reduce chipping may result in smaller then edge thickness. Thicknesses listed in tables are to theoretical sharp edge.

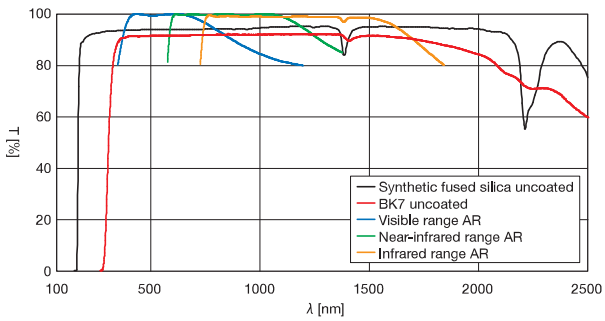
How to specify the anti-reflection coating

In case of specifying a anti-reflection coating 633nm – 1064nm to near infrared lens of SLB-50.8-200N.
⇒ SLB-50.8-200N**IR1**

Type of AR Coat	Part Number	Wavelength Range [nm]	Transmittance [%]
Visible range	SLB-50.8-200NM	400 – 700	> Average 99
Near-infrared	SLB-50.8-200NIR1	633 – 1064	> Average 98.5
Infrared	SLB-50.8-200NIR2	750 – 1550	> Average 98.5

! Part of the above is an example of if you want to coat anti-reflective coating on the lens of the SLB-50.8-200N.
! Anti-reflection coating can be available to the lens of all of SLB.

Typical Transmittance Data T: Transmission



BK7 ϕ10 – ϕ25

Uncoated	How to specify the anti-reflection coating			Diameter ϕD [mm]	Focal length f [mm]	Edge thickness te [mm]	Center thickness tc [mm]	Back focal length fb [mm]	Radius of curvature r [mm]	Centration [′]
Part Number	Visibe 400 – 700nm	Near-infrared 633 – 1064nm	Infrared 750 – 1550nm							
SLB-10-15N	M	IR1	IR2	ϕ10	–15	3.8	2.0	–16.3	7.79	<1
SLB-10-20N	M	IR1	IR2	ϕ10	–20	3.3	2.0	–21.3	10.38	<1
SLB-10-25N	M	IR1	IR2	ϕ10	–25	3.0	2.0	–26.3	12.98	<1
SLB-10-30N	M	IR1	IR2	ϕ10	–30	2.8	2.0	–31.3	15.57	<1
SLB-10-40N	M	IR1	IR2	ϕ10	–40	2.6	2.0	–41.3	20.76	<1
SLB-10-50N	M	IR1	IR2	ϕ10	–50	2.5	2.0	–51.3	25.95	<1
SLB-10-60N	M	IR1	IR2	ϕ10	–60	2.4	2.0	–61.3	31.14	<1
SLB-10-70N	M	IR1	IR2	ϕ10	–70	2.3	2.0	–71.3	36.33	<1
SLB-10-80N	M	IR1	IR2	ϕ10	–80	2.3	2.0	–81.3	41.52	<1
SLB-10-90N	M	IR1	IR2	ϕ10	–90	2.3	2.0	–91.3	46.71	<1
SLB-10-100N	M	IR1	IR2	ϕ10	–100	2.2	2.0	–101.3	51.90	<1
SLB-12.7-15N	M	IR1	IR2	ϕ12.7	–15	5.3	2.0	–16.3	7.79	<1
SLB-12.7-20N	M	IR1	IR2	ϕ12.7	–20	4.2	2.0	–21.3	10.38	<1
SLB-12.7-25N	M	IR1	IR2	ϕ12.7	–25	3.7	2.0	–26.3	12.98	<1
SLB-12.7-30N	M	IR1	IR2	ϕ12.7	–30	3.4	2.0	–31.3	15.57	<1
SLB-15-20N	M	IR1	IR2	ϕ15	–20	5.2	2.0	–21.3	10.38	<1
SLB-15-25N	M	IR1	IR2	ϕ15	–25	4.4	2.0	–26.3	12.98	<1
SLB-15-30N	M	IR1	IR2	ϕ15	–30	3.9	2.0	–31.3	15.57	<1
SLB-15-40N	M	IR1	IR2	ϕ15	–40	3.4	2.0	–41.3	20.76	<1
SLB-15-50N	M	IR1	IR2	ϕ15	–50	3.1	2.0	–51.3	25.95	<1
SLB-15-60N	M	IR1	IR2	ϕ15	–60	2.9	2.0	–61.3	31.14	<1
SLB-15-70N	M	IR1	IR2	ϕ15	–70	2.8	2.0	–71.3	36.33	<1
SLB-15-80N	M	IR1	IR2	ϕ15	–80	2.7	2.0	–81.3	41.52	<1
SLB-15-100N	M	IR1	IR2	ϕ15	–100	2.5	2.0	–101.3	51.90	<1
SLB-20-25N	M	IR1	IR2	ϕ20	–25	6.7	2.0	–26.3	12.98	<1
SLB-20-30N	M	IR1	IR2	ϕ20	–30	5.6	2.0	–31.3	15.57	<1
SLB-20-40N	M	IR1	IR2	ϕ20	–40	4.6	2.0	–41.3	20.76	<1
SLB-20-50N	M	IR1	IR2	ϕ20	–50	4.0	2.0	–51.3	25.95	<1
SLB-20-60N	M	IR1	IR2	ϕ20	–60	3.6	2.0	–61.3	31.14	<1
SLB-20-70N	M	IR1	IR2	ϕ20	–70	3.4	2.0	–71.3	36.33	<1
SLB-20-80N	M	IR1	IR2	ϕ20	–80	3.2	2.0	–81.3	41.52	<1
SLB-20-90N	M	IR1	IR2	ϕ20	–90	3.1	2.0	–91.3	46.71	<1
SLB-20-100N	M	IR1	IR2	ϕ20	–100	3.0	2.0	–101.3	51.90	<1
SLB-20-120N	M	IR1	IR2	ϕ20	–120	2.8	2.0	–121.3	62.28	<1
SLB-20-150N	M	IR1	IR2	ϕ20	–150	2.6	2.0	–151.3	77.85	<1
SLB-25-30N	M	IR1	IR2	ϕ25	–30	8.3	2.0	–31.3	15.57	<1
SLB-25-35N	M	IR1	IR2	ϕ25	–35	7.0	2.0	–36.3	18.17	<1
SLB-25-40N	M	IR1	IR2	ϕ25	–40	6.2	2.0	–41.3	20.76	<1
SLB-25-50N	M	IR1	IR2	ϕ25	–50	5.2	2.0	–51.3	25.95	<1
SLB-25-60N	M	IR1	IR2	ϕ25	–60	4.6	2.0	–61.3	31.14	<1
SLB-25-70N	M	IR1	IR2	ϕ25	–70	4.2	2.0	–71.3	36.33	<1
SLB-25-80N	M	IR1	IR2	ϕ25	–80	3.9	2.0	–81.3	41.52	<1
SLB-25-90N	M	IR1	IR2	ϕ25	–90	3.7	2.0	–91.3	46.71	<1
SLB-25-100N	M	IR1	IR2	ϕ25	–100	3.5	2.0	–101.3	51.90	<1
SLB-25-120N	M	IR1	IR2	ϕ25	–120	3.3	2.0	–121.3	62.28	<1
SLB-25-150N	M	IR1	IR2	ϕ25	–150	3.0	2.0	–151.3	77.85	<1
SLB-25-170N	M	IR1	IR2	ϕ25	–170	3.0	2.0	–171.3	88.23	<1
SLB-25-200N	M	IR1	IR2	ϕ25	–200	2.8	2.0	–201.3	103.80	<1

Compatible Optic Mounts

LHF-10S, -15S, -20S, -25S, -25.4S / MLH-10, -15

Plano Concave Lenses | SLB-N/SLSQ-N/SLSQK-N

Catalog Code W3051

BK7 ϕ25.4 – ϕ50.8

Uncoated	How to specify the anti-reflection coating			Diameter ϕD [mm]	Focal length f [mm]	Edge thickness te [mm]	Center thickness tc [mm]	Back focal length fb [mm]	Radius of curvature r [mm]	Centration [′]
Part Number	Visibe 400 – 700nm	Near-infrared 633 – 1064nm	Infrared 750 – 1550nm							
SLB-25.4-30N	M	IR1	IR2	ϕ25.4	−30	8.6	2.0	−31.3	15.57	<1
SLB-25.4-40N	M	IR1	IR2	ϕ25.4	−40	6.3	2.0	−41.3	20.76	<1
SLB-25.4-50N	M	IR1	IR2	ϕ25.4	−50	5.3	2.0	−51.3	25.95	<1
SLB-25.4-60N	M	IR1	IR2	ϕ25.4	−60	4.7	2.0	−61.3	31.14	<1
SLB-25.4-70N	M	IR1	IR2	ϕ25.4	−70	4.3	2.0	−71.3	36.33	<1
SLB-25.4-80N	M	IR1	IR2	ϕ25.4	−80	4.0	2.0	−81.3	41.52	<1
SLB-25.4-90N	M	IR1	IR2	ϕ25.4	−90	3.8	2.0	−91.3	46.71	<1
SLB-25.4-100N	M	IR1	IR2	ϕ25.4	−100	3.6	2.0	−101.3	51.90	<1
SLB-25.4-150N	M	IR1	IR2	ϕ25.4	−150	3.0	2.0	−151.3	77.85	<1
SLB-25.4-200N	M	IR1	IR2	ϕ25.4	−200	2.8	2.0	−201.3	103.80	<1
SLB-30-35N	M	IR1	IR2	ϕ30	−35	9.9	2.0	−36.3	18.17	<1
SLB-30-40N	M	IR1	IR2	ϕ30	−40	8.4	2.0	−41.3	20.76	<1
SLB-30-50N	M	IR1	IR2	ϕ30	−50	6.8	2.0	−51.3	25.95	<1
SLB-30-60N	M	IR1	IR2	ϕ30	−60	5.9	2.0	−61.3	31.14	<1
SLB-30-70N	M	IR1	IR2	ϕ30	−70	5.2	2.0	−71.3	36.33	<1
SLB-30-80N	M	IR1	IR2	ϕ30	−80	4.8	2.0	−81.3	41.52	<1
SLB-30-90N	M	IR1	IR2	ϕ30	−90	4.5	2.0	−91.3	46.71	<1
SLB-30-100N	M	IR1	IR2	ϕ30	−100	4.2	2.0	−101.3	51.90	<1
SLB-30-120N	M	IR1	IR2	ϕ30	−120	3.8	2.0	−121.3	62.28	<1
SLB-30-150N	M	IR1	IR2	ϕ30	−150	3.5	2.0	−151.3	77.85	<1
SLB-30-170N	M	IR1	IR2	ϕ30	−170	3.3	2.0	−171.3	88.23	<1
SLB-30-200N	M	IR1	IR2	ϕ30	−200	3.1	2.0	−201.3	103.80	<1
SLB-30-220N	M	IR1	IR2	ϕ30	−220	3.0	2.0	−221.3	114.18	<1
SLB-30-250N	M	IR1	IR2	ϕ30	−250	2.9	2.0	−251.3	129.75	<1
SLB-40-50N	M	IR1	IR2	ϕ40	−50	11.4	2.0	−51.3	25.95	<1
SLB-40-60N	M	IR1	IR2	ϕ40	−60	9.3	2.0	−61.3	31.14	<1
SLB-40-70N	M	IR1	IR2	ϕ40	−70	8.0	2.0	−71.3	36.33	<1
SLB-40-80N	M	IR1	IR2	ϕ40	−80	7.1	2.0	−81.3	41.52	<1
SLB-40-100N	M	IR1	IR2	ϕ40	−100	6.0	2.0	−101.3	51.90	<1
SLB-50-70N	M	IR1	IR2	ϕ50	−70	13.0	3.0	−72.0	36.33	<1
SLB-50-80N	M	IR1	IR2	ϕ50	−80	11.4	3.0	−82.0	41.52	<1
SLB-50-90N	M	IR1	IR2	ϕ50	−90	10.3	3.0	−92.0	46.71	<1
SLB-50-100N	M	IR1	IR2	ϕ50	−100	9.4	3.0	−102.0	51.90	<1
SLB-50-120N	M	IR1	IR2	ϕ50	−120	8.2	3.0	−122.0	62.28	<1
SLB-50-150N	M	IR1	IR2	ϕ50	−150	7.1	3.0	−152.0	77.85	<1
SLB-50-170N	M	IR1	IR2	ϕ50	−170	6.6	3.0	−172.0	88.23	<1
SLB-50-200N	M	IR1	IR2	ϕ50	−200	6.1	3.0	−202.0	103.80	<1
SLB-50-220N	M	IR1	IR2	ϕ50	−220	5.8	3.0	−222.0	114.18	<1
SLB-50-250N	M	IR1	IR2	ϕ50	−250	5.4	3.0	−252.0	129.75	<1
SLB-50-300N	M	IR1	IR2	ϕ50	−300	5.0	3.0	−302.0	155.70	<1
SLB-50.8-70N	M	IR1	IR2	ϕ50.8	−70	13.4	3.0	−72.0	36.33	<1
SLB-50.8-80N	M	IR1	IR2	ϕ50.8	−80	11.7	3.0	−82.0	41.52	<1
SLB-50.8-90N	M	IR1	IR2	ϕ50.8	−90	10.5	3.0	−92.0	46.71	<1
SLB-50.8-100N	M	IR1	IR2	ϕ50.8	−100	9.6	3.0	−102.0	51.90	<1
SLB-50.8-150N	M	IR1	IR2	ϕ50.8	−150	7.3	3.0	−152.0	77.85	<1
SLB-50.8-200N	M	IR1	IR2	ϕ50.8	−200	6.2	3.0	−202.0	103.80	<1
SLB-50.8-250N	M	IR1	IR2	ϕ50.8	−250	5.5	3.0	−252.0	129.75	<1
SLB-50.8-300N	M	IR1	IR2	ϕ50.8	−300	5.1	3.0	−302.0	155.70	<1

Compatible Optic Mounts

LHF-30S, -40S, -50S, -50.8S

Synthetic fused silica ϕ10 – ϕ25.4

Part Number	Diameter ϕD [mm]	Focal length f [mm]	Edge thickness te [mm]	Center thickness tc [mm]	Back focal length fb [mm]	Radius of curvature r [mm]	Centration [′]
SLSQ-10-15N	ϕ10	–15	4.1	2.0	–16.4	6.90	<1
SLSQ-10-20N	ϕ10	–20	3.5	2.0	–21.4	9.20	<1
SLSQ-10-25N	ϕ10	–25	3.1	2.0	–26.4	11.50	<1
SLSQ-10-30N	ϕ10	–30	2.9	2.0	–31.4	13.80	<1
SLSQ-10-40N	ϕ10	–40	2.7	2.0	–41.4	18.40	<1
SLSQ-10-50N	ϕ10	–50	2.6	2.0	–51.4	23.00	<1
SLSQ-10-60N	ϕ10	–60	2.5	2.0	–61.4	27.60	<1
SLSQ-10-70N	ϕ10	–70	2.4	2.0	–71.4	32.20	<1
SLSQ-10-80N	ϕ10	–80	2.3	2.0	–81.4	36.80	<1
SLSQ-10-90N	ϕ10	–90	2.3	2.0	–91.4	41.40	<1
SLSQ-10-100N	ϕ10	–100	2.3	2.0	–101.4	46.00	<1
SLSQ-12.7-20N	ϕ12.7	–20	4.5	2.0	–21.4	9.20	<1
SLSQ-12.7-25N	ϕ12.7	–25	3.9	2.0	–26.4	11.50	<1
SLSQ-12.7-30N	ϕ12.7	–30	3.5	2.0	–31.4	13.80	<1
SLSQ-12.7-40N	ϕ12.7	–40	3.1	2.0	–41.4	18.40	<1
SLSQ-15-20N	ϕ15	–20	5.9	2.0	–21.4	9.20	<1
SLSQ-15-25N	ϕ15	–25	4.8	2.0	–26.4	11.50	<1
SLSQ-15-30N	ϕ15	–30	4.2	2.0	–31.4	13.80	<1
SLSQ-15-40N	ϕ15	–40	3.6	2.0	–41.4	18.40	<1
SLSQ-15-50N	ϕ15	–50	3.3	2.0	–51.4	23.00	<1
SLSQ-15-60N	ϕ15	–60	3.0	2.0	–61.4	27.60	<1
SLSQ-15-70N	ϕ15	–70	2.9	2.0	–71.4	32.20	<1
SLSQ-15-80N	ϕ15	–80	2.8	2.0	–81.4	36.80	<1
SLSQ-15-90N	ϕ15	–90	2.7	2.0	–91.4	41.40	<1
SLSQ-15-100N	ϕ15	–100	2.6	2.0	–101.4	46.00	<1
SLSQ-20-25N	ϕ20	–25	7.8	2.0	–26.4	11.50	<1
SLSQ-20-30N	ϕ20	–30	6.3	2.0	–31.4	13.80	<1
SLSQ-20-40N	ϕ20	–40	5.0	2.0	–41.4	18.40	<1
SLSQ-20-50N	ϕ20	–50	4.3	2.0	–51.4	23.00	<1
SLSQ-20-60N	ϕ20	–60	3.9	2.0	–61.4	27.60	<1
SLSQ-20-70N	ϕ20	–70	3.6	2.0	–71.4	32.20	<1
SLSQ-20-80N	ϕ20	–80	3.4	2.0	–81.4	36.80	<1
SLSQ-20-90N	ϕ20	–90	3.2	2.0	–91.4	41.40	<1
SLSQ-20-100N	ϕ20	–100	3.1	2.0	–101.4	46.00	<1
SLSQ-20-120N	ϕ20	–120	2.9	2.0	–121.4	55.20	<1
SLSQ-20-150N	ϕ20	–150	2.7	2.0	–151.4	69.00	<1
SLSQ-25-30N	ϕ25	–30	10.0	2.0	–31.4	13.80	<1
SLSQ-25-35N	ϕ25	–35	8.0	2.0	–36.4	16.10	<1
SLSQ-25-40N	ϕ25	–40	6.9	2.0	–41.4	18.40	<1
SLSQ-25-50N	ϕ25	–50	5.7	2.0	–51.4	23.00	<1
SLSQ-25-60N	ϕ25	–60	5.0	2.0	–61.4	27.60	<1
SLSQ-25-70N	ϕ25	–70	4.5	2.0	–71.4	32.20	<1
SLSQ-25-80N	ϕ25	–80	4.2	2.0	–81.4	36.80	<1
SLSQ-25-90N	ϕ25	–90	3.9	2.0	–91.4	41.40	<1
SLSQ-25-100N	ϕ25	–100	3.7	2.0	–101.4	46.00	<1
SLSQ-25-120N	ϕ25	–120	3.4	2.0	–121.4	55.20	<1
SLSQ-25-150N	ϕ25	–150	3.1	2.0	–151.4	69.00	<1
SLSQ-25-170N	ϕ25	–170	3.0	2.0	–171.4	78.20	<1
SLSQ-25-200N	ϕ25	–200	2.9	2.0	–201.4	92.00	<1
SLSQ-25.4-30N	ϕ25.4	–30	10.4	2.0	–31.4	13.80	<1
SLSQ-25.4-35N	ϕ25.4	–35	8.2	2.0	–36.4	16.1	<1
SLSQ-25.4-40N	ϕ25.4	–40	7.1	2.0	–41.4	18.40	<1
SLSQ-25.4-50N	ϕ25.4	–50	5.8	2.0	–51.4	23.00	<1
SLSQ-25.4-60N	ϕ25.4	–60	5.1	2.0	–61.4	27.60	<1
SLSQ-25.4-70N	ϕ25.4	–70	4.6	2.0	–71.4	32.20	<1
SLSQ-25.4-80N	ϕ25.4	–80	4.3	2.0	–81.4	36.80	<1
SLSQ-25.4-90N	ϕ25.4	–90	4.0	2.0	–91.4	41.40	<1
SLSQ-25.4-100N	ϕ25.4	–100	3.8	2.0	–101.4	46.00	<1
SLSQ-25.4-150N	ϕ25.4	–150	3.2	2.0	–151.4	69.00	<1
SLSQ-25.4-200N	ϕ25.4	–200	2.9	2.0	–201.4	92.00	<1

Compatible Optic Mounts

LHF-10S, -15S, -20S, -25S, -25.4S, -30S / MLH-10, -15

Plano Concave Lenses | SLB-N/SLSQ-N/SLSQK-N

Catalog Code W3053

Synthetic fused silica ϕ30 – ϕ50.8

Part Number	Diameter ϕD [mm]	Focal length f [mm]	Edge thickness te [mm]	Center thickness tc [mm]	Back focal length fb [mm]	Radius of curvature r [mm]	Centration [′]
SLSQ-30-35N	ϕ30	−35	12.3	2.0	−36.4	16.10	<1
SLSQ-30-40N	ϕ30	−40	9.7	2.0	−41.4	18.40	<1
SLSQ-30-50N	ϕ30	−50	7.6	2.0	−51.4	23.00	<1
SLSQ-30-60N	ϕ30	−60	6.4	2.0	−61.4	27.60	<1
SLSQ-30-70N	ϕ30	−70	5.7	2.0	−71.4	32.20	<1
SLSQ-30-80N	ϕ30	−80	5.2	2.0	−81.4	36.80	<1
SLSQ-30-90N	ϕ30	−90	4.8	2.0	−91.4	41.40	<1
SLSQ-30-100N	ϕ30	−100	4.5	2.0	−101.4	46.00	<1
SLSQ-30-120N	ϕ30	−120	4.1	2.0	−121.4	55.20	<1
SLSQ-30-150N	ϕ30	−150	3.7	2.0	−151.4	69.00	<1
SLSQ-30-170N	ϕ30	−170	3.5	2.0	−171.4	78.20	<1
SLSQ-30-200N	ϕ30	−200	3.2	2.0	−201.4	92.00	<1
SLSQ-30-220N	ϕ30	−220	3.1	2.0	−221.4	101.20	<1
SLSQ-30-250N	ϕ30	−250	3.0	2.0	−251.4	115.00	<1
SLSQ-40-50N	ϕ40	−50	13.6	2.0	−51.4	23.00	<1
SLSQ-40-60N	ϕ40	−60	10.6	2.0	−61.4	27.60	<1
SLSQ-40-70N	ϕ40	−70	9.0	2.0	−71.4	32.20	<1
SLSQ-40-100N	ϕ40	−100	6.6	2.0	−101.4	46.00	<1
SLSQ-40-120N	ϕ40	−120	5.8	2.0	−121.4	55.20	<1
SLSQ-40-150N	ϕ40	−150	5.0	2.0	−151.4	69.00	<1
SLSQ-40-200N	ϕ40	−200	4.2	2.0	−201.4	92.00	<1
SLSQ-40-250N	ϕ40	−250	3.8	2.0	−251.4	115.00	<1
SLSQ-50-70N	ϕ50	−70	14.9	3.0	−72.1	32.20	<1
SLSQ-50-80N	ϕ50	−80	12.8	3.0	−82.1	36.80	<1
SLSQ-50-90N	ϕ50	−90	11.4	3.0	−92.1	41.40	<1
SLSQ-50-100N	ϕ50	−100	10.4	3.0	−102.1	46.00	<1
SLSQ-50-120N	ϕ50	−120	9.0	3.0	−122.1	55.20	<1
SLSQ-50-150N	ϕ50	−150	7.7	3.0	−152.1	69.00	<1
SLSQ-50-170N	ϕ50	−170	7.1	3.0	−172.1	78.20	<1
SLSQ-50-200N	ϕ50	−200	6.5	3.0	−202.1	92.00	<1
SLSQ-50-220N	ϕ50	−220	6.1	3.0	−222.1	101.20	<1
SLSQ-50-250N	ϕ50	−250	5.8	3.0	−252.1	115.00	<1
SLSQ-50-300N	ϕ50	−300	5.3	3.0	−302.1	138.00	<1
SLSQ-50.8-70N	ϕ50.8	−70	15.4	3.0	−72.1	32.20	<1
SLSQ-50.8-80N	ϕ50.8	−80	13.2	3.0	−82.1	36.80	<1
SLSQ-50.8-90N	ϕ50.8	−90	11.7	3.0	−92.1	41.40	<1
SLSQ-50.8-100N	ϕ50.8	−100	10.6	3.0	−102.1	46.00	<1
SLSQ-50.8-150N	ϕ50.8	−150	7.8	3.0	−152.1	69.00	<1
SLSQ-50.8-200N	ϕ50.8	−200	6.6	3.0	−202.1	92.00	<1
SLSQ-50.8-250N	ϕ50.8	−250	5.8	3.0	−252.1	115.00	<1
SLSQ-50.8-300N	ϕ50.8	−300	5.4	3.0	−302.1	138.00	<1

Catalog Code W3054

Synthetic fused silica for Excimer Laser ϕ30, ϕ50

Part Number	Diameter D [mm]	Focal length f [mm]	Edge thickness te [mm]	Center thickness tc [mm]	Back focal length fb [mm]	Radius of curvature r [mm]	Centration [′]
SLSQK-30-50N	ϕ30	−50	7.6	2.0	−51.4	23.00	<1
SLSQK-30-60N	ϕ30	−60	6.4	2.0	−61.4	27.60	<1
SLSQK-30-70N	ϕ30	−70	5.7	2.0	−71.4	32.20	<1
SLSQK-30-100N	ϕ30	−100	4.5	2.0	−101.4	46.00	<1
SLSQK-30-150N	ϕ30	−150	3.7	2.0	−151.4	69.00	<1
SLSQK-50-70N	ϕ50	−70	14.9	3.0	−72.1	32.20	<1
SLSQK-50-80N	ϕ50	−80	12.8	3.0	−82.1	36.80	<1
SLSQK-50-100N	ϕ50	−100	10.4	3.0	−102.1	46.00	<1
SLSQK-50-150N	ϕ50	−150	7.7	3.0	−152.1	69.00	<1
SLSQK-50-200N	ϕ50	−200	6.5	3.0	−202.1	92.00	<1

Compatible Optic Mounts

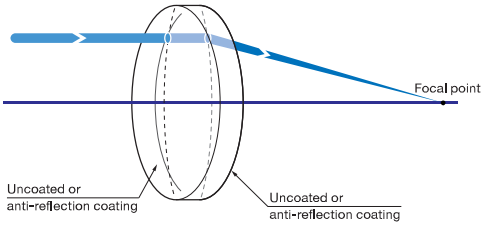
LHF-30S, -40S, -50S, -50.8S

RoHS

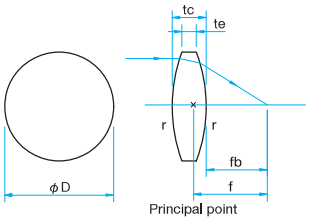
Symmetrical biconvex lenses are most useful when dealing with finite conjugate points. This makes them ideal for 1:1 imaging applications or for use in multi-element systems.

- There are two types of biconvex lenses available; BK7 for use in visible range to infrared wavelength range and synthetic fused silica for wavelengths less than 350nm ultraviolet light.
- BK7 lenses are also available with three types of anti-reflection coatings, visible wavelength range, in the near-infrared range and in the infrared range.
- Our lenses are listed by outside diameter and focal length to assist your selection according to required specifications.

Schematic



Outline Drawing (in mm)



●Tolerance

Diameter	
φ60 or less	$\phi D^{+0}_{-0.1}$
φ80	$\phi D^{+0}_{-0.15}$
φ100	$\phi D^{+0}_{-0.2}$
Thickness	tc±0.15
Focal length	
(φ10≦φD)	±1%
(φD<φ10)	±2%

Specifications

Material	SLB: BK7 SLSQ: Synthetic fused silica
Design wavelength	546.1nm
Refractive index	BK7: n_e=1.519 Synthetic fused silica: n_e=1.460
Coating	Uncoated: the end of the part number 'P' Anti-reflection coating: the end of the part number 'PM', 'PIR1', 'PIR2'
Laser Damage Threshold	Anti-reflection coating: 4J/cm^2 Laser pulse with 10ns, repetition frequency 20Hz
Clear aperture	90% of actual aperture: Uncoated 85% of actual aperture: with coating, φ10≦D 83% of actual aperture: with coating, D<φ10
Surface Quality (Scratch–Dig)	20–10 φ10≦D 40–20 D<φ10

Guide

- ▶Lenses are available in a large selection and in custom sizes and focal lengths.
- ▶In addition to our standard coating we offer custom anti-reflective coating at specific wavelengths.
- ▶Achromatic lenses (DLB) which are chromatic aberration correction are also available. Reference B172

Attention

- ▶The biconvex spherical lens has a chromatic aberration, and the focal length will vary depending on the wavelength. Please check the "wavelength characteristic of the focal length data" on the Web for the focal lengths of each wavelength. WEB Reference Catalog Code W3055
- ▶Biconvex spherical aberration is larger than that of the plano-convex lens, so focal spot may not gather at one point.
- ▶Transmissions losses due to reflection off the front and rear surfaces of the lens can be minimized by coating the surfaces. Consult our Sales Division for anti-reflection coatings suitable for your application.

How to specify the anti-reflection coating

In case of specifying a anti-reflection coating 633nm – 1064nm to near infrared lens of SLB-100B-500P.
⇒ SLB-100B-500P**IR1**

Type of AR Coat	Part Number	Wavelength Range [nm]	Transmittance [%]
Visible range	**SLB-100B-500PM**	400 – 700	> Average 99
Near-infrared	**SLB-100B-500PIR1**	633 – 1064	> Average 98.5
Infrared	**SLB-100B-500PIR2**	750 – 1550	> Average 98.5

! Part of the above is an example of if you want to coat anti-reflective coating on the lens of the SLB-100B-500P.
! Anti-reflection coating can be available to the lens of all of SLB.

BK7 φ5

Uncoated	How to specify the anti-reflection coating			Diameter φD [mm]	Focal length f [mm]	Edge thickness te [mm]	Center thickness tc [mm]	Back focal length fb [mm]	Radius of curvature r [mm]	Centration [′]
Part Number	Visibe 400 – 700nm	Near-infrared 633 – 1064nm	Infrared 750 – 1550nm							
SLB-05B-06P	**M**	**IR1**	**IR2**	φ5	6.4	1.5	2.5	5.6	6.23	<3
SLB-05B-08P	**M**	**IR1**	**IR2**	φ5	8.4	1.4	2.1	7.6	8.30	<3
SLB-05B-10P	**M**	**IR1**	**IR2**	φ5	10.3	1.3	1.9	9.7	10.38	<3
SLB-05B-12P	**M**	**IR1**	**IR2**	φ5	12.3	1.2	1.7	11.7	12.46	<3
SLB-05B-15P	**M**	**IR1**	**IR2**	φ5	15.3	1.2	1.6	14.7	15.57	<3
SLB-05B-20P	**M**	**IR1**	**IR2**	φ5	20.2	1.1	1.4	19.8	20.76	<3
SLB-05B-25P	**M**	**IR1**	**IR2**	φ5	25.2	1.1	1.3	24.8	25.95	<3

Compatible Optic Mounts

MLH-10, -15

Biconvex Lenses | SLB-B-P/SLSQ-B-P

Catalog Code W3055

BK7 ϕ6 – ϕ20

Uncoated	How to specify the anti-reflection coating			Diameter ϕD [mm]	Focal length f [mm]	Edge thickness te [mm]	Center thickness tc [mm]	Back focal length fb [mm]	Radius of curvature r [mm]	Centration [′]
Part Number	Visibe 400 – 700nm	Near-infrared 633 – 1064nm	Infrared 750 – 1550nm							
SLB-06B-06P	M	IR1	IR2	ϕ6	6.4	1.0	2.5	5.6	6.23	<3
SLB-06B-08P	M	IR1	IR2	ϕ6	8.4	1.0	2.1	7.6	8.30	<3
SLB-06B-10P	M	IR1	IR2	ϕ6	10.3	1.0	1.9	9.7	10.38	<3
SLB-06B-12P	M	IR1	IR2	ϕ6	12.3	1.0	1.7	11.7	12.46	<3
SLB-06B-15P	M	IR1	IR2	ϕ6	15.3	1.0	1.6	14.7	15.57	<3
SLB-06B-20P	M	IR1	IR2	ϕ6	20.2	1.0	1.4	19.8	20.76	<3
SLB-07B-08P	M	IR1	IR2	ϕ7	8.6	2.0	3.6	7.4	8.30	<3
SLB-07B-10P	M	IR1	IR2	ϕ7	10.5	1.9	3.1	9.5	10.38	<3
SLB-07B-12P	M	IR1	IR2	ϕ7	12.5	1.8	2.8	11.5	12.46	<3
SLB-07B-15P	M	IR1	IR2	ϕ7	15.4	1.7	2.5	14.6	15.57	<3
SLB-07B-20P	M	IR1	IR2	ϕ7	20.4	1.7	2.3	19.6	20.76	<3
SLB-08B-08P	M	IR1	IR2	ϕ8	8.6	1.5	3.6	7.4	8.30	<3
SLB-08B-10P	M	IR1	IR2	ϕ8	10.5	1.5	3.1	9.5	10.38	<3
SLB-08B-12P	M	IR1	IR2	ϕ8	12.5	1.5	2.8	11.5	12.46	<3
SLB-08B-15P	M	IR1	IR2	ϕ8	15.4	1.5	2.5	14.6	15.57	<3
SLB-08B-20P	M	IR1	IR2	ϕ8	20.4	1.5	2.3	19.6	20.76	<3
SLB-08B-25P	M	IR1	IR2	ϕ8	25.4	1.5	2.1	24.6	25.95	<3
SLB-10B-10P	M	IR1	IR2	ϕ10	10.8	2.0	4.6	9.2	10.38	<1
SLB-10B-15P	M	IR1	IR2	ϕ10	15.6	2.0	3.6	14.4	15.57	<1
SLB-10B-20P	M	IR1	IR2	ϕ10	20.5	2.0	3.2	19.5	20.76	<1
SLB-10B-25P	M	IR1	IR2	ϕ10	25.5	2.0	3.0	24.5	25.95	<1
SLB-10B-30P	M	IR1	IR2	ϕ10	30.5	2.0	2.8	29.5	31.14	<1
SLB-10B-40P	M	IR1	IR2	ϕ10	40.4	2.0	2.6	39.6	41.52	<1
SLB-10B-50P	M	IR1	IR2	ϕ10	50.4	2.0	2.5	49.6	51.90	<1
SLB-10B-60P	M	IR1	IR2	ϕ10	60.4	2.0	2.4	59.6	62.28	<1
SLB-10B-70P	M	IR1	IR2	ϕ10	70.4	2.0	2.3	69.6	72.66	<1
SLB-10B-80P	M	IR1	IR2	ϕ10	80.4	2.0	2.3	79.6	83.04	<1
SLB-10B-90P	M	IR1	IR2	ϕ10	90.4	2.0	2.3	89.6	93.42	<1
SLB-10B-100P	M	IR1	IR2	ϕ10	100.4	2.0	2.2	99.6	103.80	<1
SLB-12.7B-12P	M	IR1	IR2	ϕ12.7	13.0	2.0	5.5	11.0	12.46	<1
SLB-12.7B-20P	M	IR1	IR2	ϕ12.7	20.7	2.0	4.0	19.3	20.76	<1
SLB-12.7B-25P	M	IR1	IR2	ϕ12.7	25.6	2.0	3.6	24.4	25.95	<1
SLB-12.7B-30P	M	IR1	IR2	ϕ12.7	30.6	2.0	3.3	29.5	31.14	<1
SLB-12.7B-40P	M	IR1	IR2	ϕ12.7	40.5	2.0	3.0	39.5	41.52	<1
SLB-12.7B-50P	M	IR1	IR2	ϕ12.7	50.5	2.0	2.8	49.5	51.90	<1
SLB-12.7B-60P	M	IR1	IR2	ϕ12.7	60.4	2.0	2.6	59.6	62.28	<1
SLB-12.7B-70P	M	IR1	IR2	ϕ12.7	70.4	2.0	2.6	69.6	72.66	<1
SLB-15B-15P	M	IR1	IR2	ϕ15	16.0	2.0	5.9	14.0	15.57	<1
SLB-15B-20P	M	IR1	IR2	ϕ15	20.8	2.0	4.8	19.2	20.76	<1
SLB-15B-25P	M	IR1	IR2	ϕ15	25.7	2.0	4.2	24.3	25.95	<1
SLB-15B-30P	M	IR1	IR2	ϕ15	30.6	2.0	3.8	29.4	31.14	<1
SLB-15B-40P	M	IR1	IR2	ϕ15	40.6	2.0	3.4	39.4	41.52	<1
SLB-15B-50P	M	IR1	IR2	ϕ15	50.5	2.0	3.1	49.5	51.90	<1
SLB-15B-60P	M	IR1	IR2	ϕ15	60.5	2.0	2.9	59.5	62.28	<1
SLB-15B-70P	M	IR1	IR2	ϕ15	70.5	2.0	2.8	69.5	72.66	<1
SLB-15B-80P	M	IR1	IR2	ϕ15	80.4	2.0	2.7	79.6	83.04	<1
SLB-15B-90P	M	IR1	IR2	ϕ15	90.4	2.0	2.6	89.6	93.42	<1
SLB-15B-100P	M	IR1	IR2	ϕ15	100.4	2.0	2.5	99.6	103.80	<1
SLB-20B-20P	M	IR1	IR2	ϕ20	21.2	2.0	7.1	18.8	20.76	<1
SLB-20B-25P	M	IR1	IR2	ϕ20	26.0	2.0	6.0	24.0	25.95	<1
SLB-20B-30P	M	IR1	IR2	ϕ20	31.0	2.0	5.3	29.1	31.14	<1
SLB-20B-40P	M	IR1	IR2	ϕ20	40.7	2.0	4.4	39.3	41.52	<1
SLB-20B-50P	M	IR1	IR2	ϕ20	50.7	2.0	3.9	49.3	51.90	<1
SLB-20B-60P	M	IR1	IR2	ϕ20	60.6	2.0	3.6	59.4	62.28	<1
SLB-20B-70P	M	IR1	IR2	ϕ20	70.6	2.0	3.4	69.4	72.66	<1
SLB-20B-80P	M	IR1	IR2	ϕ20	80.5	2.0	3.2	79.5	83.04	<1
SLB-20B-90P	M	IR1	IR2	ϕ20	90.5	2.0	3.1	89.5	93.42	<1
SLB-20B-100P	M	IR1	IR2	ϕ20	100.5	2.0	3.0	99.5	103.80	<1
SLB-20B-120P	M	IR1	IR2	ϕ20	120.5	2.0	2.8	119.5	124.56	<1
SLB-20B-150P	M	IR1	IR2	ϕ20	150.4	2.0	2.6	149.6	155.70	<1

Compatible Optic Mounts

LHF-10S, -15S, -20S / MLH-10, -15

BK7 ϕ25 – ϕ50

Uncoated	How to specify the anti-reflection coating			Diameter ϕD [mm]	Focal length f [mm]	Edge thickness te [mm]	Center thickness tc [mm]	Back focal length fb [mm]	Radius of curvature r [mm]	Centration [′]
Part Number	Visibe 400 – 700nm	Near-infrared 633 – 1064nm	Infrared 750 – 1550nm							
SLB-25B-25P	M	IR1	IR2	ϕ25	26.5	2.0	8.4	23.5	25.95	<1
SLB-25B-30P	M	IR1	IR2	ϕ25	31.2	2.0	7.2	28.8	31.14	<1
SLB-25B-35P	M	IR1	IR2	ϕ25	36.1	2.0	6.4	33.9	36.33	<1
SLB-25B-40P	M	IR1	IR2	ϕ25	41.0	2.0	5.9	39.0	41.52	<1
SLB-25B-50P	M	IR1	IR2	ϕ25	50.8	2.0	5.1	49.2	51.90	<1
SLB-25B-60P	M	IR1	IR2	ϕ25	60.8	2.0	4.5	59.2	62.28	<1
SLB-25B-70P	M	IR1	IR2	ϕ25	70.7	2.0	4.1	69.3	72.66	<1
SLB-25B-80P	M	IR1	IR2	ϕ25	80.6	2.0	3.9	79.4	83.04	<1
SLB-25B-90P	M	IR1	IR2	ϕ25	90.6	2.0	3.7	89.4	93.42	<1
SLB-25B-100P	M	IR1	IR2	ϕ25	100.6	2.0	3.5	99.4	103.80	<1
SLB-25B-150P	M	IR1	IR2	ϕ25	150.5	2.0	3.0	149.5	155.70	<1
SLB-25B-170P	M	IR1	IR2	ϕ25	170.5	2.0	2.9	169.5	176.46	<1
SLB-25B-200P	M	IR1	IR2	ϕ25	200.5	2.0	2.8	199.5	207.60	<1
SLB-25.4B-25P	M	IR1	IR2	ϕ25.4	26.5	1.8	8.4	23.6	25.95	<1
SLB-25.4B-30P	M	IR1	IR2	ϕ25.4	31.2	1.8	7.2	28.7	31.14	<1
SLB-25.4B-35P	M	IR1	IR2	ϕ25.4	36.1	1.8	6.4	33.9	36.33	<1
SLB-25.4B-40P	M	IR1	IR2	ϕ25.4	41.0	1.9	5.9	39.0	41.52	<1
SLB-25.4B-50P	M	IR1	IR2	ϕ25.4	50.8	1.9	5.1	49.2	51.90	<1
SLB-25.4B-60P	M	IR1	IR2	ϕ25.4	60.8	1.9	4.5	59.2	62.28	<1
SLB-25.4B-70P	M	IR1	IR2	ϕ25.4	70.7	1.9	4.1	69.3	72.66	<1
SLB-25.4B-80P	M	IR1	IR2	ϕ25.4	80.6	1.9	3.9	79.3	83.04	<1
SLB-25.4B-100P	M	IR1	IR2	ϕ25.4	100.6	1.9	3.5	99.4	103.80	<1
SLB-25.4B-150P	M	IR1	IR2	ϕ25.4	150.5	2.0	3.0	149.5	155.70	<1
SLB-25.4B-200P	M	IR1	IR2	ϕ25.4	200.5	2.0	2.8	199.6	207.60	<1
SLB-30B-30P	M	IR1	IR2	ϕ30	31.7	2.0	9.7	28.3	31.14	<1
SLB-30B-35P	M	IR1	IR2	ϕ30	36.5	2.0	8.5	33.5	36.33	<1
SLB-30B-40P	M	IR1	IR2	ϕ30	41.3	2.0	7.6	38.7	41.52	<1
SLB-30B-50P	M	IR1	IR2	ϕ30	51.1	2.0	6.4	48.9	51.90	<1
SLB-30B-60P	M	IR1	IR2	ϕ30	60.9	2.0	5.7	59.1	62.28	<1
SLB-30B-70P	M	IR1	IR2	ϕ30	70.9	2.0	5.1	69.1	72.66	<1
SLB-30B-80P	M	IR1	IR2	ϕ30	80.8	2.0	4.7	79.2	83.04	<1
SLB-30B-100P	M	IR1	IR2	ϕ30	100.7	2.0	4.2	99.3	103.80	<1
SLB-30B-120P	M	IR1	IR2	ϕ30	120.6	2.0	3.8	119.4	124.56	<1
SLB-30B-150P	M	IR1	IR2	ϕ30	150.6	2.0	3.4	149.4	155.70	<1
SLB-30B-170P	M	IR1	IR2	ϕ30	170.5	2.0	3.3	169.5	176.46	<1
SLB-30B-200P	M	IR1	IR2	ϕ30	200.5	2.0	3.1	199.5	207.60	<1
SLB-30B-250P	M	IR1	IR2	ϕ30	250.5	2.0	2.9	249.5	259.50	<1
SLB-40B-40P	M	IR1	IR2	ϕ40	42.1	2.0	12.3	37.9	41.52	<1
SLB-40B-50P	M	IR1	IR2	ϕ40	51.7	2.0	10.0	48.3	51.90	<1
SLB-40B-60P	M	IR1	IR2	ϕ40	61.4	2.0	8.6	58.6	62.28	<1
SLB-40B-70P	M	IR1	IR2	ϕ40	71.3	2.0	7.6	68.7	72.66	<1
SLB-40B-80P	M	IR1	IR2	ϕ40	81.2	2.0	6.9	78.8	83.04	<1
SLB-40B-90P	M	IR1	IR2	ϕ40	91.1	2.0	6.3	88.9	93.42	<1
SLB-40B-100P	M	IR1	IR2	ϕ40	101.0	2.0	5.9	99.0	103.80	<1
SLB-40B-120P	M	IR1	IR2	ϕ40	120.9	2.0	5.2	119.1	124.56	<1
SLB-40B-150P	M	IR1	IR2	ϕ40	150.8	2.0	4.6	149.2	155.70	<1
SLB-40B-170P	M	IR1	IR2	ϕ40	170.7	2.0	4.3	169.3	176.46	<1
SLB-40B-200P	M	IR1	IR2	ϕ40	200.6	2.0	3.9	199.4	207.60	<1
SLB-40B-250P	M	IR1	IR2	ϕ40	250.6	2.0	3.5	249.4	259.50	<1
SLB-50B-50P	M	IR1	IR2	ϕ50	52.7	3.0	15.8	47.3	51.90	<1
SLB-50B-60P	M	IR1	IR2	ϕ50	62.3	3.0	13.5	57.7	62.28	<1
SLB-50B-70P	M	IR1	IR2	ϕ50	72.0	3.0	11.9	68.0	72.66	<1
SLB-50B-80P	M	IR1	IR2	ϕ50	81.8	3.0	10.7	78.2	83.04	<1
SLB-50B-90P	M	IR1	IR2	ϕ50	91.6	3.0	9.8	88.4	93.42	<1
SLB-50B-100P	M	IR1	IR2	ϕ50	101.5	3.0	9.1	98.5	103.80	<1
SLB-50B-120P	M	IR1	IR2	ϕ50	121.3	3.0	8.0	118.7	124.56	<1
SLB-50B-150P	M	IR1	IR2	ϕ50	151.2	3.0	7.0	148.8	155.70	<1
SLB-50B-170P	M	IR1	IR2	ϕ50	171.1	3.0	6.6	168.9	176.46	<1
SLB-50B-200P	M	IR1	IR2	ϕ50	201.0	3.0	6.0	199.0	207.60	<1
SLB-50B-220P	M	IR1	IR2	ϕ50	220.9	3.0	5.7	219.1	228.36	<1
SLB-50B-250P	M	IR1	IR2	ϕ50	251.0	3.0	5.4	249.1	259.50	<1
SLB-50B-300P	M	IR1	IR2	ϕ50	300.8	3.0	5.0	299.2	311.40	<1

Compatible Optic Mounts

LHF-25S, -25.4S, -30S, -40S, -50S

Biconvex Lenses | SLB-B-P/SLSQ-B-P

Catalog Code W3057

BK7 ϕ50.8 – ϕ100

Uncoated	How to specify the anti-reflection coating			Diameter ϕD [mm]	Focal length f [mm]	Edge thickness te [mm]	Center thickness tc [mm]	Back focal length fb [mm]	Radius of curvature r [mm]	Centration [′]
Part Number	Visibe 400 – 700nm	Near-infrared 633 – 1064nm	Infrared 750 – 1550nm							
SLB-50.8B-50P	M	IR1	IR2	ϕ50.8	52.7	3.0	16.3	47.1	51.90	<1
SLB-50.8B-60P	M	IR1	IR2	ϕ50.8	62.3	3.0	13.8	57.7	62.28	<1
SLB-50.8B-70P	M	IR1	IR2	ϕ50.8	72.0	3.0	12.2	68.0	72.66	<1
SLB-50.8B-80P	M	IR1	IR2	ϕ50.8	81.8	3.0	11.0	78.2	83.04	<1
SLB-50.8B-90P	M	IR1	IR2	ϕ50.8	91.6	2.8	9.8	88.3	93.42	<1
SLB-50.8B-100P	M	IR1	IR2	ϕ50.8	101.5	3.0	9.3	98.5	103.80	<1
SLB-50.8B-120P	M	IR1	IR2	ϕ50.8	121.3	2.8	8.0	118.6	124.56	<1
SLB-50.8B-150P	M	IR1	IR2	ϕ50.8	151.2	2.8	7.0	148.9	155.70	<1
SLB-50.8B-170P	M	IR1	IR2	ϕ50.8	171.1	2.4	6.1	169.0	176.46	<1
SLB-50.8B-200P	M	IR1	IR2	ϕ50.8	201.0	2.9	6.0	199.0	207.60	<1
SLB-50.8B-250P	M	IR1	IR2	ϕ50.8	251.0	2.9	5.4	249.1	259.50	<1
SLB-50.8B-300P	M	IR1	IR2	ϕ50.8	300.8	2.9	5.0	299.1	311.40	<1
SLB-60B-60P	M	IR1	IR2	ϕ60	63.2	3.0	18.4	56.8	62.28	<1
SLB-60B-70P	M	IR1	IR2	ϕ60	72.7	3.0	16.0	67.3	72.66	<1
SLB-60B-80P	M	IR1	IR2	ϕ60	82.4	3.0	14.2	77.6	83.04	<1
SLB-60B-90P	M	IR1	IR2	ϕ60	92.2	3.0	13.0	87.8	93.42	<1
SLB-60B-100P	M	IR1	IR2	ϕ60	102.0	3.0	11.9	98.0	103.80	<1
SLB-60B-120P	M	IR1	IR2	ϕ60	121.7	3.0	10.3	118.3	124.56	<1
SLB-60B-150P	M	IR1	IR2	ϕ60	151.5	3.0	8.8	148.5	155.70	<1
SLB-60B-170P	M	IR1	IR2	ϕ60	171.4	3.0	8.1	168.7	176.46	<1
SLB-60B-200P	M	IR1	IR2	ϕ60	201.2	3.0	7.4	198.8	207.60	<1
SLB-60B-250P	M	IR1	IR2	ϕ60	251.1	3.0	6.5	248.9	259.50	<1
SLB-60B-300P	M	IR1	IR2	ϕ60	301.0	3.0	5.9	299.0	311.40	<1
SLB-80B-100P	M	IR1	IR2	ϕ80	103.2	3.0	19.0	96.8	103.80	<1
SLB-80B-150P	M	IR1	IR2	ϕ80	152.2	3.0	13.5	147.8	155.70	<1
SLB-80B-200P	M	IR1	IR2	ϕ80	201.8	3.0	10.8	198.2	207.60	<1
SLB-80B-250P	M	IR1	IR2	ϕ80	251.5	3.0	9.2	248.5	259.50	<1
SLB-80B-300P	M	IR1	IR2	ϕ80	301.3	3.0	8.2	298.7	311.40	<1
SLB-80B-400P	M	IR1	IR2	ϕ80	401.1	3.0	6.9	398.9	415.20	<1
SLB-80B-500P	M	IR1	IR2	ϕ80	501.0	3.0	6.1	499.0	519.00	<1
SLB-80B-700P	M	IR1	IR2	ϕ80	700.9	3.0	5.2	699.1	726.60	<1
SLB-80B-1000P	M	IR1	IR2	ϕ80	1000.7	3.0	4.5	999.3	1038.00	<1
SLB-100B-150P	M	IR1	IR2	ϕ100	153.3	3.0	19.5	146.7	155.70	<1
SLB-100B-200P	M	IR1	IR2	ϕ100	202.5	3.0	15.2	197.5	207.60	<1
SLB-100B-250P	M	IR1	IR2	ϕ100	252.1	3.0	12.7	247.9	259.50	<1
SLB-100B-300P	M	IR1	IR2	ϕ100	301.8	3.0	11.1	298.2	311.40	<1
SLB-100B-400P	M	IR1	IR2	ϕ100	401.5	3.0	9.0	398.5	415.20	<1
SLB-100B-500P	M	IR1	IR2	ϕ100	501.3	3.0	7.8	498.7	519.00	<1
SLB-100B-700P	M	IR1	IR2	ϕ100	701.1	3.0	6.4	698.9	726.60	<1
SLB-100B-1000P	M	IR1	IR2	ϕ100	1001.0	3.0	5.4	999.1	1038.00	<1

Catalog Code W3058

Synthetic fused silica ϕ5 – ϕ6

Part Number	Diameter ϕD [mm]	Focal length f [mm]	Edge thickness te [mm]	Center thickness tc [mm]	Back focal length fb [mm]	Radius of curvature r [mm]	Centration [′]
SLSQ-05B-06P	ϕ5	6.5	1.6	2.8	5.5	5.52	<3
SLSQ-05B-08P	ϕ5	8.4	1.4	2.3	7.6	7.36	<3
SLSQ-05B-10P	ϕ5	10.4	1.3	2.0	9.6	9.20	<3
SLSQ-05B-12P	ϕ5	12.3	1.3	1.8	11.7	11.04	<3
SLSQ-05B-15P	ϕ5	15.3	1.2	1.7	14.7	13.80	<3
SLSQ-05B-20P	ϕ5	20.3	1.2	1.5	19.7	18.40	<3
SLSQ-05B-25P	ϕ5	25.2	1.1	1.4	24.8	23.00	<3
SLSQ-05B-30P	ϕ5	30.2	1.1	1.3	29.8	27.60	<3
SLSQ-06B-06P	ϕ6	6.5	1.0	2.8	5.5	5.52	<3
SLSQ-06B-08P	ϕ6	8.4	1.0	2.3	7.6	7.36	<3
SLSQ-06B-10P	ϕ6	10.4	1.0	2.0	9.6	9.20	<3
SLSQ-06B-12P	ϕ6	12.3	1.0	1.8	11.7	11.04	<3
SLSQ-06B-15P	ϕ6	15.3	1.0	1.7	14.7	13.80	<3
SLSQ-06B-20P	ϕ6	20.3	1.0	1.5	19.7	18.40	<3
SLSQ-06B-25P	ϕ6	25.2	1.0	1.4	24.8	23.00	<3
SLSQ-06B-30P	ϕ6	30.2	1.0	1.3	29.8	27.60	<3

Compatible Optic Mounts

LHF-50.8S, -60AS, -80, -100 / MLH-10, -15

Synthetic fused silica ϕ7 – ϕ25

Part Number	Diameter ϕD [mm]	Focal length f [mm]	Edge thickness te [mm]	Center thickness tc [mm]	Back focal length fb [mm]	Radius of curvature r [mm]	Centration [′]
SLSQ-07B-08P	ϕ7	8.7	2.1	3.9	7.3	7.36	<3
SLSQ-07B-10P	ϕ7	10.6	1.9	3.3	9.4	9.20	<3
SLSQ-07B-12P	ϕ7	12.5	1.9	3.0	11.5	11.04	<3
SLSQ-07B-15P	ϕ7	15.5	1.8	2.7	14.5	13.80	<3
SLSQ-07B-20P	ϕ7	20.4	1.7	2.4	19.6	18.40	<3
SLSQ-07B-25P	ϕ7	25.4	1.7	2.2	24.6	23.00	<3
SLSQ-07B-30P	ϕ7	30.4	1.6	2.1	29.6	27.60	<3
SLSQ-07B-40P	ϕ7	40.3	1.6	1.9	39.7	36.80	<3
SLSQ-07B-50P	ϕ7	50.3	1.6	1.8	49.7	46.00	<3
SLSQ-08B-08P	ϕ8	8.7	1.5	3.9	7.3	7.36	<3
SLSQ-08B-10P	ϕ8	10.6	1.5	3.3	9.4	9.20	<3
SLSQ-08B-12P	ϕ8	12.5	1.5	3.0	11.5	11.04	<3
SLSQ-08B-15P	ϕ8	15.5	1.5	2.7	14.5	13.80	<3
SLSQ-08B-20P	ϕ8	20.4	1.5	2.4	19.6	18.40	<3
SLSQ-08B-25P	ϕ8	25.4	1.5	2.2	24.6	23.00	<3
SLSQ-08B-30P	ϕ8	30.4	1.5	2.1	29.6	27.60	<3
SLSQ-08B-40P	ϕ8	40.3	1.5	1.9	39.7	36.80	<3
SLSQ-08B-50P	ϕ8	50.3	1.5	1.8	49.7	46.00	<3
SLSQ-10B-10P	ϕ10	10.9	2.0	5.0	9.1	9.20	<1
SLSQ-10B-15P	ϕ10	15.7	2.0	3.9	14.3	13.80	<1
SLSQ-10B-20P	ϕ10	20.6	2.0	3.4	19.4	18.40	<1
SLSQ-10B-25P	ϕ10	25.5	2.0	3.1	24.5	23.00	<1
SLSQ-10B-30P	ϕ10	30.5	2.0	2.9	29.5	27.60	<1
SLSQ-10B-40P	ϕ10	40.5	2.0	2.7	39.5	36.80	<1
SLSQ-10B-50P	ϕ10	50.4	2.0	2.5	49.6	46.00	<1
SLSQ-10B-60P	ϕ10	60.4	2.0	2.5	59.6	55.20	<1
SLSQ-10B-70P	ϕ10	70.4	2.0	2.4	69.6	64.40	<1
SLSQ-10B-80P	ϕ10	80.4	2.0	2.3	79.6	73.60	<1
SLSQ-10B-90P	ϕ10	90.4	2.0	2.3	89.6	82.80	<1
SLSQ-10B-100P	ϕ10	100.4	2.0	2.3	99.6	92.00	<1
SLSQ-15B-15P	ϕ15	16.2	2.0	6.4	13.8	13.80	<1
SLSQ-15B-20P	ϕ15	20.9	2.0	5.2	19.1	18.40	<1
SLSQ-15B-25P	ϕ15	25.8	2.0	4.5	24.2	23.00	<1
SLSQ-15B-30P	ϕ15	30.7	2.0	4.1	29.3	27.60	<1
SLSQ-15B-40P	ϕ15	40.6	2.0	3.5	39.4	36.80	<1
SLSQ-15B-50P	ϕ15	50.6	2.0	3.2	49.4	46.00	<1
SLSQ-15B-60P	ϕ15	60.5	2.0	3.0	59.5	55.20	<1
SLSQ-15B-70P	ϕ15	70.5	2.0	2.9	69.5	64.40	<1
SLSQ-15B-80P	ϕ15	80.5	2.0	2.8	79.5	73.60	<1
SLSQ-15B-90P	ϕ15	90.5	2.0	2.7	89.5	82.80	<1
SLSQ-15B-100P	ϕ15	100.5	2.0	2.6	99.6	92.00	<1
SLSQ-20B-20P	ϕ20	21.5	2.0	7.9	18.5	18.40	<1
SLSQ-20B-25P	ϕ20	26.2	2.0	6.6	23.8	23.00	<1
SLSQ-20B-30P	ϕ20	31.0	2.0	5.8	29.0	27.60	<1
SLSQ-20B-40P	ϕ20	40.8	2.0	4.8	39.2	36.80	<1
SLSQ-20B-50P	ϕ20	50.7	2.0	4.2	49.3	46.00	<1
SLSQ-20B-60P	ϕ20	60.7	2.0	3.8	59.3	55.20	<1
SLSQ-20B-70P	ϕ20	70.6	2.0	3.6	69.4	64.40	<1
SLSQ-20B-80P	ϕ20	80.6	2.0	3.4	79.4	73.60	<1
SLSQ-20B-90P	ϕ20	90.6	2.0	3.2	89.4	82.80	<1
SLSQ-20B-100P	ϕ20	100.5	2.0	3.1	99.5	92.00	<1
SLSQ-20B-120P	ϕ20	120.5	2.0	2.9	119.5	110.40	<1
SLSQ-20B-150P	ϕ20	150.5	2.0	2.7	149.5	138.00	<1
SLSQ-25B-25P	ϕ25	26.7	2.0	9.4	23.3	23.00	<1
SLSQ-25B-30P	ϕ25	31.4	2.0	8.0	28.6	27.60	<1
SLSQ-25B-35P	ϕ25	36.3	2.0	7.1	33.7	32.20	<1
SLSQ-25B-40P	ϕ25	41.1	2.0	6.4	38.9	36.80	<1
SLSQ-25B-50P	ϕ25	51.0	2.0	5.5	49.0	46.00	<1
SLSQ-25B-60P	ϕ25	60.8	2.0	4.9	59.2	55.20	<1
SLSQ-25B-70P	ϕ25	70.8	2.0	4.5	69.2	64.40	<1
SLSQ-25B-80P	ϕ25	80.7	2.0	4.1	79.3	73.60	<1
SLSQ-25B-90P	ϕ25	90.7	2.0	3.9	89.3	82.80	<1
SLSQ-25B-100P	ϕ25	100.6	2.0	3.7	99.4	92.00	<1
SLSQ-25B-120P	ϕ25	120.6	2.0	3.4	119.4	110.40	<1
SLSQ-25B-150P	ϕ25	150.5	2.0	3.1	149.5	138.00	<1
SLSQ-25B-170P	ϕ25	170.5	2.0	3.0	169.5	156.40	<1
SLSQ-25B-200P	ϕ25	200.5	2.0	2.9	199.5	184.00	<1

Compatible Optic Mounts

LHF-10S, -15S, -20S, -25S / MLH-10, -15

Biconvex Lenses | SLB-B-P/SLSQ-B-P

Catalog Code W3059

Synthetic fused silica ϕ25.4 – ϕ50.8

Part Number	Diameter ϕD [mm]	Focal length f [mm]	Edge thickness te [mm]	Center thickness tc [mm]	Back focal length fb [mm]	Radius of curvature r [mm]	Centration [′]
SLSQ-25.4B-25P	ϕ25.4	26.7	1.8	9.4	23.3	23.00	<1
SLSQ-25.4B-30P	ϕ25.4	31.4	1.8	8.0	28.5	27.60	<1
SLSQ-25.4B-35P	ϕ25.4	36.3	1.9	7.1	33.8	32.20	<1
SLSQ-25.4B-40P	ϕ25.4	41.1	1.9	6.4	38.8	36.80	<1
SLSQ-25.4B-50P	ϕ25.4	51.0	1.9	5.5	49.1	46.00	<1
SLSQ-25.4B-60P	ϕ25.4	60.9	1.9	4.9	59.0	55.20	<1
SLSQ-25.4B-70P	ϕ25.4	70.8	1.9	4.4	69.1	64.40	<1
SLSQ-25.4B-80P	ϕ25.4	80.7	1.9	4.1	79.1	73.60	<1
SLSQ-25.4B-90P	ϕ25.4	90.7	1.9	3.9	89.2	82.80	<1
SLSQ-25.4B-100P	ϕ25.4	100.6	1.9	3.7	99.2	92.00	<1
SLSQ-25.4B-150P	ϕ25.4	150.5	1.9	3.1	149.3	138.00	<1
SLSQ-25.4B-200P	ϕ25.4	200.5	2.0	2.9	199.4	184.00	<1
SLSQ-30B-30P	ϕ30	32.0	2.0	10.9	28.0	27.60	<1
SLSQ-30B-35P	ϕ30	36.7	2.0	9.4	33.3	32.20	<1
SLSQ-30B-40P	ϕ30	41.5	2.0	8.4	38.5	36.80	<1
SLSQ-30B-50P	ϕ30	51.2	2.0	7.0	48.8	46.00	<1
SLSQ-30B-60P	ϕ30	61.1	2.0	6.2	58.9	55.20	<1
SLSQ-30B-70P	ϕ30	71.0	2.0	5.5	69.0	64.40	<1
SLSQ-30B-80P	ϕ30	80.9	2.0	5.1	79.1	73.60	<1
SLSQ-30B-90P	ϕ30	90.8	2.0	4.7	89.2	82.80	<1
SLSQ-30B-100P	ϕ30	100.8	2.0	4.5	99.2	92.00	<1
SLSQ-30B-120P	ϕ30	120.7	2.0	4.0	119.3	110.40	<1
SLSQ-30B-150P	ϕ30	150.6	2.0	3.6	149.4	138.00	<1
SLSQ-30B-170P	ϕ30	170.6	2.0	3.4	169.4	156.40	<1
SLSQ-30B-200P	ϕ30	200.6	2.0	3.2	199.4	184.00	<1
SLSQ-30B-220P	ϕ30	220.5	2.0	3.1	219.5	202.40	<1
SLSQ-30B-250P	ϕ30	250.5	2.0	3.0	249.5	230.00	<1
SLSQ-40B-40P	ϕ40	42.5	2.0	13.8	37.5	36.80	<1
SLSQ-40B-50P	ϕ40	52.0	2.0	11.2	48.0	46.00	<1
SLSQ-40B-60P	ϕ40	61.7	2.0	9.5	58.3	55.20	<1
SLSQ-40B-70P	ϕ40	71.5	2.0	8.4	68.5	64.40	<1
SLSQ-40B-80P	ϕ40	81.3	2.0	7.5	78.7	73.60	<1
SLSQ-40B-90P	ϕ40	91.2	2.0	6.9	88.8	82.80	<1
SLSQ-40B-100P	ϕ40	101.1	2.0	6.4	98.9	92.00	<1
SLSQ-40B-120P	ϕ40	121.0	2.0	5.7	119.0	110.40	<1
SLSQ-40B-150P	ϕ40	150.8	2.0	4.9	149.2	138.00	<1
SLSQ-40B-170P	ϕ40	170.8	2.0	4.6	169.2	156.40	<1
SLSQ-40B-200P	ϕ40	200.7	2.0	4.2	199.3	184.00	<1
SLSQ-40B-220P	ϕ40	220.7	2.0	4.0	219.3	202.40	<1
SLSQ-40B-250P	ϕ40	250.6	2.0	3.7	249.4	230.00	<1
SLSQ-50B-50P	ϕ50	53.2	3.0	17.8	46.8	46.00	<1
SLSQ-50B-60P	ϕ50	62.7	3.0	15.0	57.3	55.20	<1
SLSQ-50B-70P	ϕ50	72.3	3.0	13.1	67.7	64.40	<1
SLSQ-50B-80P	ϕ50	82.1	3.0	11.8	77.9	73.60	<1
SLSQ-50B-90P	ϕ50	91.9	3.0	10.7	88.1	82.80	<1
SLSQ-50B-100P	ϕ50	101.7	3.0	9.9	98.3	92.00	<1
SLSQ-50B-120P	ϕ50	121.5	3.0	8.7	118.5	110.40	<1
SLSQ-50B-150P	ϕ50	151.3	3.0	7.6	148.7	138.00	<1
SLSQ-50B-170P	ϕ50	171.2	3.0	7.0	168.8	156.40	<1
SLSQ-50B-200P	ϕ50	201.1	3.0	6.4	198.9	184.00	<1
SLSQ-50B-220P	ϕ50	221.0	3.0	6.1	219.0	202.40	<1
SLSQ-50B-250P	ϕ50	251.0	3.0	5.7	249.0	230.00	<1
SLSQ-50B-300P	ϕ50	300.9	3.0	5.3	299.1	276.00	<1
SLSQ-50.8B-50P	ϕ50.8	53.2	2.5	17.8	46.7	46.00	<1
SLSQ-50.8B-60P	ϕ50.8	62.7	2.6	15.0	57.3	55.20	<1
SLSQ-50.8B-70P	ϕ50.8	72.3	2.7	13.1	67.7	64.40	<1
SLSQ-50.8B-80P	ϕ50.8	82.1	2.8	11.8	78.0	73.60	<1
SLSQ-50.8B-90P	ϕ50.8	91.9	2.7	10.7	87.7	82.80	<1
SLSQ-50.8B-100P	ϕ50.8	101.7	2.7	9.9	98.3	92.00	<1
SLSQ-50.8B-120P	ϕ50.8	121.5	2.8	8.7	118.5	110.40	<1
SLSQ-50.8B-150P	ϕ50.8	151.3	2.9	7.6	148.7	138.00	<1
SLSQ-50.8B-200P	ϕ50.8	201.1	2.9	6.4	198.9	184.00	<1
SLSQ-50.8B-250P	ϕ50.8	251.0	3.0	5.8	249.0	230.00	<1
SLSQ-50.8B-300P	ϕ50.8	300.9	3.0	5.3	298.8	276.00	<1

Compatible Optic Mounts

LHF-25.4S, -30S, -40S, -50S, -50.8S

Biconcave Lenses | SLB-B-N/SLSQ-B-N

RoHS

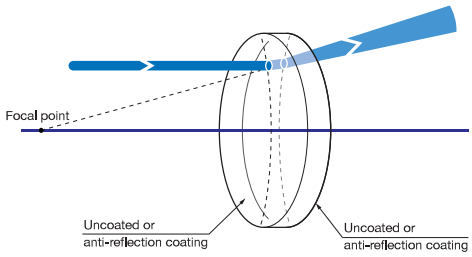
These biconcave lenses are used when a very high negative power is required. They can be used in a multi-element system or alone to produce a diverging cone or virtual image. Sharpe edges, which are common in negative lenses, are removed by beveling to reduce the likelihood of chipping.

- There are two types of biconvex lenses available; BK7 for use in visible range to infrared wavelength range and synthetic fused silica for wavelengths less than 350nm ultraviolet light.
- Consult our Sales Division for anti-reflection coatings suitable for your application.
- Our lenses are listed by outside diameter and focal length to assist your selection according to required specifications.

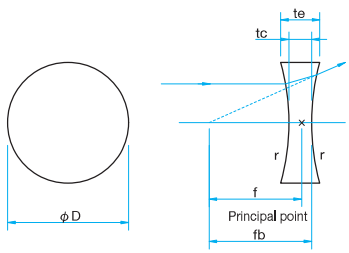
Specifications

Material	SLB: BK7 SLSQ: Synthetic fused silica
Design wavelength	546.1nm
Refractive index	BK7: n_e=1.519 Synthetic fused silica: n_e=1.460
Coating	Uncoated: the end of the part number 'N' Anti-reflection coating: the end of the part number 'NM', 'NIR1', 'NIR2'
Laser Damage Threshold	Anti-reflection coating: 4J/cm^2 Laser pulse with 10ns, repetition frequency 20Hz
Clear aperture	90% of actual aperture: Uncoated 85% of actual aperture: with coating
Surface Quality (Scratch–Dig)	20–10

Schematic



Outline Drawing (in mm)



●Tolerance
Diameter $\phi D^{+0}_{-0.1}$
Thickness tc ±0.15
Focal length ±1%

Guide

- ▶Lenses are available in a large selection and in custom sizes and focal lengths.
- ▶In addition to our standard coating we offer custom anti-reflective coating at specific wavelengths.

Attention

- ▶When a concave lens is used in combination with a convex lens it will be able to converge the light and can projected a suitable image.
- ▶The biconvex spherical lens has chromatic aberration, and the focal length will vary depending on the wavelength. Please check the "wavelength characteristic of the focal length data" on the Web for the focal lengths of each wavelength. WEB Reference Catalog Code W3060
- ▶Transmissions losses due to reflection off the front and rear surfaces of the lens can be minimized by coating the surfaces. Consult our Sales Team for anti-reflection coatings suitable for your application.
- ▶The outer edge of the concave side is chamfered and the result is possibility that the lens may have a smaller edge thickness for this design.

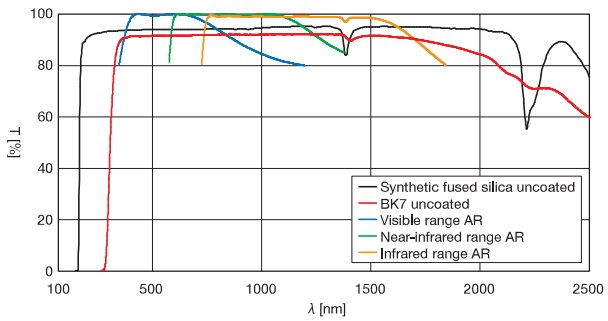
How to specify the anti-reflection coating

In case of specifying a anti-reflection coating 633nm – 1064nm to near infrared lens of SLB-50.8B-200N.
⇒ SLB-50.8B-200N**IR1**

Type of AR Coat	Part Number	Wavelength Range [nm]	Transmittance [%]
Visible range	SLB-50.8B-200NM	400 – 700	> Average 99
Near-infrared	SLB-50.8B-200NIR1	633 – 1064	> Average 98.5
Infrared	SLB-50.8B-200NIR2	750 – 1550	> Average 98.5

! Part of the above is an example of if you want to coat anti-reflective coating on the lens of the SLB-50.8B-200N.
! Anti-reflection coating can be available to the lens of all of SLB.

Typical Transmittance Data T: Transmission



Biconcave Lenses | SLB-B-N/SLSQ-B-N

Catalog Code W3060

BK7 ϕ10 – ϕ50.8

Uncoated	How to specify the anti-reflection coating			Diameter ϕD [mm]	Focal length f [mm]	Edge thickness te [mm]	Center thickness tc [mm]	Back focal length fb [mm]	Radius of curvature r [mm]	Centration [′]
Part Number	Visibe 400 – 700nm	Near-infrared 633 – 1064nm	Infrared 750 – 1550nm							
SLB-10B-10N	M	IR1	IR2	ϕ10	–9.7	4.6	2.0	–10.3	10.38	<1
SLB-10B-15N	M	IR1	IR2	ϕ10	–14.7	3.6	2.0	–15.3	15.57	<1
SLB-10B-20N	M	IR1	IR2	ϕ10	–19.7	3.2	2.0	–20.3	20.76	<1
SLB-10B-25N	M	IR1	IR2	ϕ10	–24.7	3.0	2.0	–25.3	25.95	<1
SLB-10B-30N	M	IR1	IR2	ϕ10	–29.7	2.8	2.0	–30.3	31.14	<1
SLB-10B-40N	M	IR1	IR2	ϕ10	–39.7	2.6	2.0	–40.3	41.52	<1
SLB-10B-50N	M	IR1	IR2	ϕ10	–49.7	2.5	2.0	–50.3	51.90	<1
SLB-12.7B-10N	M	IR1	IR2	ϕ12.7	–9.7	6.3	2.0	–10.3	10.8	<1
SLB-12.7B-15N	M	IR1	IR2	ϕ12.7	–14.7	4.7	2.0	–15.3	15.57	<1
SLB-12.7B-20N	M	IR1	IR2	ϕ12.7	–19.7	4.0	2.0	–20.3	20.76	<1
SLB-12.7B-25N	M	IR1	IR2	ϕ12.7	–24.7	3.6	2.0	–25.3	25.95	<1
SLB-15B-15N	M	IR1	IR2	ϕ15	–14.7	5.9	2.0	–15.3	15.57	<1
SLB-15B-20N	M	IR1	IR2	ϕ15	–19.7	4.8	2.0	–20.3	20.76	<1
SLB-15B-25N	M	IR1	IR2	ϕ15	–24.7	4.2	2.0	–25.3	25.95	<1
SLB-15B-30N	M	IR1	IR2	ϕ15	–29.7	3.8	2.0	–30.3	31.14	<1
SLB-15B-40N	M	IR1	IR2	ϕ15	–39.7	3.4	2.0	–40.3	41.52	<1
SLB-15B-50N	M	IR1	IR2	ϕ15	–49.7	3.1	2.0	–50.3	51.90	<1
SLB-20B-20N	M	IR1	IR2	ϕ20	–19.7	7.1	2.0	–20.3	20.76	<1
SLB-20B-25N	M	IR1	IR2	ϕ20	–24.7	6.0	2.0	–25.3	25.95	<1
SLB-20B-30N	M	IR1	IR2	ϕ20	–29.7	5.3	2.0	–30.3	31.14	<1
SLB-20B-40N	M	IR1	IR2	ϕ20	–39.7	4.4	2.0	–40.3	41.52	<1
SLB-20B-50N	M	IR1	IR2	ϕ20	–49.7	3.9	2.0	–50.3	51.90	<1
SLB-25B-25N	M	IR1	IR2	ϕ25	–24.7	8.4	2.0	–25.3	25.95	<1
SLB-25B-30N	M	IR1	IR2	ϕ25	–29.7	7.2	2.0	–30.3	31.14	<1
SLB-25B-35N	M	IR1	IR2	ϕ25	–34.7	6.4	2.0	–35.3	36.33	<1
SLB-25B-40N	M	IR1	IR2	ϕ25	–39.7	5.9	2.0	–40.3	41.52	<1
SLB-25B-50N	M	IR1	IR2	ϕ25	–49.7	5.1	2.0	–50.3	51.90	<1
SLB-25B-60N	M	IR1	IR2	ϕ25	–59.7	4.5	2.0	–60.3	62.28	<1
SLB-25B-70N	M	IR1	IR2	ϕ25	–69.7	4.2	2.0	–70.3	72.66	<1
SLB-25B-80N	M	IR1	IR2	ϕ25	–79.7	4.0	2.0	–80.3	83.04	<1
SLB-25B-100N	M	IR1	IR2	ϕ25	–99.7	3.5	2.0	–100.3	103.80	<1
SLB-25.4B-25N	M	IR1	IR2	ϕ25.4	–24.7	8.6	2.0	–25.4	25.95	<1
SLB-25.4B-30N	M	IR1	IR2	ϕ25.4	–29.7	7.4	2.0	–30.4	31.14	<1
SLB-25.4B-40N	M	IR1	IR2	ϕ25.4	–39.7	6.0	2.0	–40.4	41.52	<1
SLB-25.4B-50N	M	IR1	IR2	ϕ25.4	–49.7	5.2	2.0	–50.4	51.90	<1
SLB-25.4B-60N	M	IR1	IR2	ϕ25.4	–59.7	4.6	2.0	–60.4	62.28	<1
SLB-25.4B-70N	M	IR1	IR2	ϕ25.4	–69.7	4.2	2.0	–70.4	72.66	<1
SLB-25.4B-80N	M	IR1	IR2	ϕ25.4	–79.7	4.0	2.0	–80.4	83.04	<1
SLB-25.4B-100N	M	IR1	IR2	ϕ25.4	–99.7	3.6	2.0	–100.4	103.80	<1
SLB-25.4B-150N	M	IR1	IR2	ϕ25.4	–149.7	3.0	2.0	–150.4	155.70	<1
SLB-25.4B-200N	M	IR1	IR2	ϕ25.4	–199.7	2.8	2.0	–200.4	207.60	<1
SLB-30B-30N	M	IR1	IR2	ϕ30	–29.7	9.7	2.0	–30.3	31.14	<1
SLB-30B-35N	M	IR1	IR2	ϕ30	–34.7	8.5	2.0	–35.3	36.33	<1
SLB-30B-40N	M	IR1	IR2	ϕ30	–39.7	7.6	2.0	–40.3	41.52	<1
SLB-30B-50N	M	IR1	IR2	ϕ30	–49.7	6.4	2.0	–50.3	51.90	<1
SLB-30B-100N	M	IR1	IR2	ϕ30	–99.7	4.2	2.0	–100.3	103.80	<1
SLB-40B-40N	M	IR1	IR2	ϕ40	–39.7	12.3	2.0	–40.3	41.52	<1
SLB-40B-50N	M	IR1	IR2	ϕ40	–49.7	10.0	2.0	–50.3	51.90	<1
SLB-40B-100N	M	IR1	IR2	ϕ40	–99.7	5.9	2.0	–100.3	103.80	<1
SLB-50B-50N	M	IR1	IR2	ϕ50	–49.5	15.8	3.0	–50.5	51.90	<1
SLB-50B-60N	M	IR1	IR2	ϕ50	–59.5	13.5	3.0	–60.5	62.28	<1
SLB-50B-70N	M	IR1	IR2	ϕ50	–69.5	11.9	3.0	–70.5	72.66	<1
SLB-50B-100N	M	IR1	IR2	ϕ50	–99.5	9.1	3.0	–100.5	103.80	<1
SLB-50.8B-50N	M	IR1	IR2	ϕ50.8	–49.5	16.3	3.0	–50.5	51.90	<1
SLB-50.8B-60N	M	IR1	IR2	ϕ50.8	–59.5	13.8	3.0	–60.5	62.28	<1
SLB-50.8B-100N	M	IR1	IR2	ϕ50.8	–99.5	9.3	3.0	–100.5	103.80	<1
SLB-50.8B-150N	M	IR1	IR2	ϕ50.8	–149.5	7.2	3.0	–150.5	155.70	<1
SLB-50.8B-200N	M	IR1	IR2	ϕ50.8	–199.5	6.1	3.0	–200.5	207.60	<1
SLB-50.8B-250N	M	IR1	IR2	ϕ50.8	–249.5	5.5	3.0	–250.5	259.50	<1
SLB-50.8B-300N	M	IR1	IR2	ϕ50.8	–299.5	5.1	3.0	–300.5	311.40	<1

Compatible Optic Mounts

LHF-10S, -15S, -20S, -25S, -25.4S, -30S, -40S, -50S, -50.8S / MLH-10, -15

Synthetic fused silica ϕ10 – ϕ50.8

Part Number	Diameter ϕD [mm]	Focal length f [mm]	Edge thickness te [mm]	Center thickness tc [mm]	Back focal length fb [mm]	Radius of curvature r [mm]	Centration [′]
SLSQ-10B-10N	ϕ10	–9.7	5.0	2.0	–10.3	9.20	<1
SLSQ-10B-15N	ϕ10	–14.7	3.9	2.0	–15.3	13.80	<1
SLSQ-10B-20N	ϕ10	–19.7	3.4	2.0	–20.3	18.40	<1
SLSQ-10B-25N	ϕ10	–24.7	3.1	2.0	–25.3	23.00	<1
SLSQ-10B-30N	ϕ10	–29.7	2.9	2.0	–30.3	27.60	<1
SLSQ-10B-40N	ϕ10	–39.7	2.7	2.0	–40.3	36.80	<1
SLSQ-10B-50N	ϕ10	–49.7	2.5	2.0	–50.3	46.00	<1
SLSQ-15B-15N	ϕ15	–14.7	6.4	2.0	–15.3	13.80	<1
SLSQ-15B-20N	ϕ15	–19.7	5.2	2.0	–20.3	18.40	<1
SLSQ-15B-25N	ϕ15	–24.7	4.5	2.0	–25.3	23.00	<1
SLSQ-15B-30N	ϕ15	–29.7	4.1	2.0	–30.3	27.60	<1
SLSQ-15B-40N	ϕ15	–39.7	3.5	2.0	–40.3	36.80	<1
SLSQ-15B-50N	ϕ15	–49.7	3.2	2.0	–50.3	46.00	<1
SLSQ-20B-20N	ϕ20	–19.7	7.9	2.0	–20.3	18.40	<1
SLSQ-20B-25N	ϕ20	–24.7	6.6	2.0	–25.3	23.00	<1
SLSQ-20B-30N	ϕ20	–29.7	5.8	2.0	–30.3	27.60	<1
SLSQ-20B-40N	ϕ20	–39.7	4.8	2.0	–40.3	36.80	<1
SLSQ-20B-50N	ϕ20	–49.7	4.2	2.0	–50.3	46.00	<1
SLSQ-25B-25N	ϕ25	–24.7	9.4	2.0	–25.3	23.00	<1
SLSQ-25B-30N	ϕ25	–29.7	8.0	2.0	–30.3	27.60	<1
SLSQ-25B-35N	ϕ25	–34.7	7.1	2.0	–35.3	32.20	<1
SLSQ-25B-40N	ϕ25	–39.7	6.4	2.0	–40.3	36.80	<1
SLSQ-25B-50N	ϕ25	–49.7	5.5	2.0	–50.3	46.00	<1
SLSQ-25B-60N	ϕ25	–59.7	4.9	2.0	–60.3	55.20	<1
SLSQ-25B-70N	ϕ25	–69.7	4.5	2.0	–70.3	64.40	<1
SLSQ-25B-80N	ϕ25	–79.7	4.1	2.0	–80.3	73.60	<1
SLSQ-25B-90N	ϕ25	–89.7	3.9	2.0	–90.3	82.80	<1
SLSQ-25B-100N	ϕ25	–99.7	3.7	2.0	–100.3	92.00	<1
SLSQ-25.4B-25N	ϕ25.4	–24.7	9.6	2.0	–25.4	23.00	<1
SLSQ-25.4B-30N	ϕ25.4	–29.7	8.2	2.0	–30.4	27.60	<1
SLSQ-25.4B-40N	ϕ25.4	–39.7	6.5	2.0	–40.4	36.80	<1
SLSQ-25.4B-50N	ϕ25.4	–49.7	5.6	2.0	–50.4	46.00	<1
SLSQ-25.4B-60N	ϕ25.4	–59.7	5.0	2.0	–60.4	55.20	<1
SLSQ-25.4B-70N	ϕ25.4	–69.7	4.5	2.0	–70.4	64.40	<1
SLSQ-25.4B-80N	ϕ25.4	–79.7	4.2	2.0	–80.4	73.60	<1
SLSQ-25.4B-90N	ϕ25.4	–89.7	4.0	2.0	–90.4	82.80	<1
SLSQ-25.4B-100N	ϕ25.4	–99.7	3.8	2.0	–100.4	92.00	<1
SLSQ-25.4B-150N	ϕ25.4	–149.7	3.2	2.0	–150.4	138.00	<1
SLSQ-25.4B-200N	ϕ25.4	–199.7	2.9	2.0	–200.4	184.00	<1
SLSQ-30B-30N	ϕ30	–29.7	10.9	2.0	–30.3	27.60	<1
SLSQ-30B-35N	ϕ30	–34.7	9.4	2.0	–35.3	32.20	<1
SLSQ-30B-40N	ϕ30	–39.7	8.4	2.0	–40.3	36.80	<1
SLSQ-30B-50N	ϕ30	–49.7	7.0	2.0	–50.3	46.00	<1
SLSQ-30B-60N	ϕ30	–59.7	6.2	2.0	–60.3	55.20	<1
SLSQ-30B-70N	ϕ30	–69.7	5.5	2.0	–70.3	64.40	<1
SLSQ-30B-80N	ϕ30	–79.7	5.1	2.0	–80.3	73.60	<1
SLSQ-30B-90N	ϕ30	–89.7	4.7	2.0	–90.3	82.80	<1
SLSQ-30B-100N	ϕ30	–99.7	4.5	2.0	–100.3	92.00	<1
SLSQ-40B-40N	ϕ40	–39.7	13.8	2.0	–40.3	36.80	<1
SLSQ-40B-50N	ϕ40	–49.7	11.2	2.0	–50.3	46.00	<1
SLSQ-40B-60N	ϕ40	–59.7	9.5	2.0	–60.3	55.20	<1
SLSQ-40B-70N	ϕ40	–69.7	8.4	2.0	–70.3	64.40	<1
SLSQ-40B-80N	ϕ40	–79.7	7.5	2.0	–80.3	73.60	<1
SLSQ-40B-90N	ϕ40	–89.7	6.9	2.0	–90.3	82.80	<1
SLSQ-40B-100N	ϕ40	–99.7	6.4	2.0	–100.3	92.00	<1
SLSQ-50B-50N	ϕ50	–49.5	17.8	3.0	–50.5	46.00	<1
SLSQ-50B-60N	ϕ50	–59.5	15.0	3.0	–60.5	55.20	<1
SLSQ-50B-70N	ϕ50	–69.5	13.1	3.0	–70.5	64.40	<1
SLSQ-50B-80N	ϕ50	–79.5	11.8	3.0	–80.5	73.60	<1
SLSQ-50B-90N	ϕ50	–89.5	10.7	3.0	–90.5	82.80	<1
SLSQ-50B-100N	ϕ50	–99.5	9.9	3.0	–100.5	92.00	<1
SLSQ-50.8B-50N	ϕ50.8	–49.5	18.3	3.0	–50.5	46.00	<1
SLSQ-50.8B-60N	ϕ50.8	–59.5	15.4	3.0	–60.5	55.20	<1
SLSQ-50.8B-70N	ϕ50.8	–69.5	13.4	3.0	–70.5	64.40	<1
SLSQ-50.8B-80N	ϕ50.8	–79.5	12.0	3.0	–80.5	73.60	<1
SLSQ-50.8B-90N	ϕ50.8	–89.5	11.0	3.0	–90.5	82.80	<1
SLSQ-50.8B-100N	ϕ50.8	–99.5	10.2	3.0	–100.5	92.00	<1
SLSQ-50.8B-150N	ϕ50.8	–149.5	7.7	3.0	–150.5	138.00	<1
SLSQ-50.8B-200N	ϕ50.8	–199.5	6.5	3.0	–200.5	184.00	<1
SLSQ-50.8B-250N	ϕ50.8	–249.5	5.8	3.0	–250.5	230.00	<1
SLSQ-50.8B-300N	ϕ50.8	–299.5	5.3	3.0	–300.5	276.00	<1

Compatible Optic Mounts

LHF-10S, -15S, -20S, -25S, -25.4S, -30S, -40S, -50S, -50.8S / MLH-10, -15

ϕ25.4 (BK7) Lens Kit | SLB-25.4-SET

RoHS Catalog Code W3194

This is a perfect lens kit suitable for use in many areas from teaching materials to research and development. The special Lens Kit comes with 27 lenses that are commonly used including plano convex (9 Focal lengths), biconvex (6 Focal lengths), plano concave (6 Focal lengths) and biconcave (6 Focal lengths).

- Outer diameter of the lenses are all 25.4mm diameter.
- Focal length are provided in a wide range of –200 - 1,000 mm.
- A special case made of wood is provided for convenient storage.

Specifications

Part Number	SLB-25.4-SET
Material	BK7
Design Wavelength	546.1nm
Refractive Index	n_e=1.519
Coating	Uncoated
Clear Aperture	90% of the diameter
Surface Quality (Scratch–Dig)	20–10

Components

Shape of Lenses	Part Number	Diameter ϕD [mm]	Focal length f [mm]	Edge thickness te [mm]	Center thickness tc [mm]	Back focal length fb [mm]	Centration [′]
Plano Convex Lenses	SLB-25.4-30P	ϕ25.4	30	1.7	8.3	24.5	<1
	SLB-25.4-50P	ϕ25.4	50	1.9	5.2	46.6	<1
	SLB-25.4-70P	ϕ25.4	70	1.9	4.2	67.2	<1
	SLB-25.4-100P	ϕ25.4	100	1.9	3.5	97.7	<1
	SLB-25.4-150P	ϕ25.4	150	2.0	3.0	148.0	<1
	SLB-25.4-200P	ϕ25.4	200	2.0	2.8	198.2	<1
	SLB-25.4-300P	ϕ25.4	300	2.0	2.5	298.4	<3
	SLB-25.4-500P	ϕ25.4	500	2.0	2.3	498.4	<3
	SLB-25.4-1000P	ϕ25.4	1000	2.0	2.2	998.5	<3
Biconvex Lenses	SLB-25.4B-25P	ϕ25.4	26.5	1.8	8.4	23.6	<1
	SLB-25.4B-50P	ϕ25.4	50.8	1.9	5.1	49.2	<1
	SLB-25.4B-70P	ϕ25.4	70.7	1.9	4.1	69.3	<1
	SLB-25.4B-100P	ϕ25.4	100.6	1.9	3.5	99.4	<1
	SLB-25.4B-150P	ϕ25.4	150.5	2.0	3.0	149.5	<1
	SLB-25.4B-200P	ϕ25.4	200.5	2.0	2.8	199.6	<1
Plano Concave Lenses	SLB-25.4-30N	ϕ25.4	–30	8.6	2.0	–31.3	<1
	SLB-25.4-50N	ϕ25.4	–50	5.3	2.0	–51.3	<1
	SLB-25.4-70N	ϕ25.4	–70	4.3	2.0	–71.3	<1
	SLB-25.4-100N	ϕ25.4	–100	3.6	2.0	–101.3	<1
	SLB-25.4-150N	ϕ25.4	–150	3.0	2.0	–151.3	<1
	SLB-25.4-200N	ϕ25.4	–200	2.8	2.0	–201.3	<1
Biconcave Lenses	SLB-25.4B-25N	ϕ25.4	–24.7	8.6	2.0	–25.4	<1
	SLB-25.4B-50N	ϕ25.4	–49.7	5.2	2.0	–50.4	<1
	SLB-25.4B-70N	ϕ25.4	–69.7	4.2	2.0	–70.4	<1
	SLB-25.4B-100N	ϕ25.4	–99.7	3.6	2.0	–100.4	<1
	SLB-25.4B-150N	ϕ25.4	–149.7	3.0	2.0	–150.4	<1
	SLB-25.4B-200N	ϕ25.4	–199.7	2.8	2.0	–200.4	<1

Contact sheet for Special Order for spherical lens

☐ Estimation ☐ Order

Date

☐ To: Sigma Koki Co., Ltd. **FAX +81-3-5638-6550**

Affiliation (Organization Name)					
Department					
TEL		FAX		E-mail	
Country/Address					
Name & Designation					(Tentative name is okay)
Drawing Number			Estimate	☐ Yes: by Date	☐ No
Desired Delivery Date			Budget		JP Yen

Specification of lens	Quantity			
	Selected from standard product	Part Number		If you are using a spherical lens of standard product, please fill in the product number.
	Custom-made	Shape	☐ Plano Convex ☐ Biconvex ☐ Plano Concave ☐ Biconcave ☐ Meniscus ☐ Other ( )	
		Material	☐ BK7 ☐ Synthetic fused silica ☐ Synthetic fused silica for Excimer Laser (λ =)	
		Focal length	f = mm	●When there is no specification of the design wavelength, 546.1nm and standard products. ●May want to change the center thickness by the case of the production. ●If you do not specify the dimension tolerance, we will apply our standard tolerance instead.
		Diameter	Diameter	
			Center Thickness	tc =
		Design wavelength	λ = nm	
Specifications of Coating	Presence or absence of the coating		☐ Non ☐ Single-layer anti-reflection coating ☐ Broadband multi-layer anti-reflection coating ☐ Other ( )	
	Type of AR (If required)			

Specifications of Light Source Used	Wavelength Range	λ = nm	Type	
	Output or Energy	W	Beam Size	mm
		J Pulse width s Repetition frequency Hz		
Incident angle	θ = °			
Other	* Write more detailed specifications here. (Rough illustration is acceptable.)			

Sigma Koki Co., Ltd.

General Catalog 02

Reasonable Plano Convex Lens | S-SLB-P/S-SLB-B-P

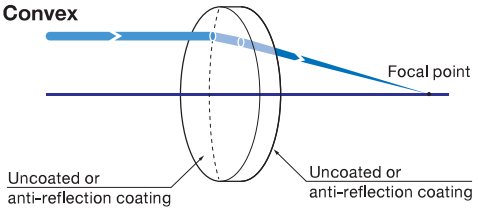
RoHS

This lower cost product offering of Plano Convex Lenses has only minimal reduction in quality and is perfect for most applications.
It can be used in an optical systems such as observation or lighting applications when the higher surface quality Plano Convex Lens (SLB-P) is not required.

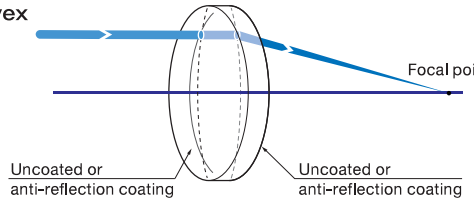
- It has the same specification of Plano Convex Lens (SLB-P) except the surface quality and is ideal for experiments and applications where high-precision is not required.
- There are two types of lens offer, a Plano convex lens with low spherical aberration and a biconvex lens that is used to shorten the focal length.
- In addition to uncoated products, there are three types of anti-reflection coating for visible, near-infrared, and infrared.

Schematic

Plano Convex



Biconvex



Specifications

Material	BK7
Design Wavelength	546.1nm
Refractive Index	n_e=1.519
Centration	<3′
Coating	Uncoated: the end of the part number 'P' Anti-reflection coating: the end of the part number 'PM', 'PIR1', 'PIR2'
Laser Damage Threshold	Anti-reflection coating: 4J/cm^2 Laser pulse with 10ns, repetition frequency 20Hz
Clear Aperture	90% of actual aperture: Uncoated 85% of actual aperture: with coating, ϕ10≦D 83% of actual aperture: with coating, D<ϕ10
Surface Quality (Scratch–Dig)	60–40

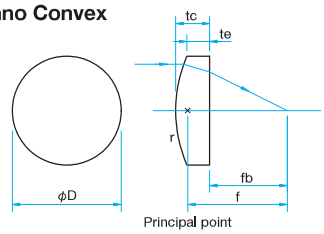
Attention

- Plano convex lens and biconvex spherical lens have a chromatic aberration, and the focal length will vary depending on the wavelength.
- Please check the "wavelength characteristic of the focal length data" on the Web for the focal lengths of each wavelength.
  WEB Reference Catalog Code W3041
- Transmissions losses due to reflection off the front and rear surfaces of the lens can be minimized by coating the surfaces. Consult our Sales Division for anti-reflection coatings suitable for your application.

Outline Drawing

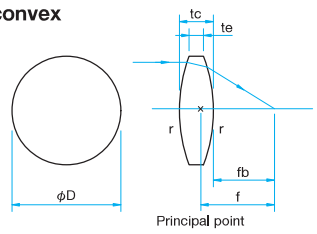
(in mm)

Plano Convex



●Tolerance
Diameter
ϕ60 or less $\phi D^{+0}_{-0.1}$
ϕ80 $\phi D^{+0}_{-0.15}$
ϕ100 $\phi D^{+0}_{-0.2}$
Focal length
(ϕ10≦ϕD) ±1%
(ϕD<ϕ10) ±2%
Thickness tc ±0.15

Biconvex



●Tolerance
Diameter
ϕ60 or less $\phi D^{+0}_{-0.1}$
ϕ80 $\phi D^{+0}_{-0.15}$
ϕ100 $\phi D^{+0}_{-0.2}$
Focal length
(ϕ10≦ϕD) ±1%
(ϕD<ϕ10) ±2%
Thickness tc ±0.15

How to specify the anti-reflection coating

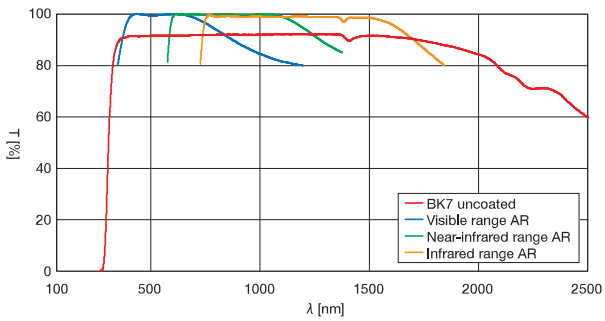
In case of specifying a anti-reflection coating 633nm – 1064nm to near infrared lens of S-SLB-100-500P.
⇒ S-SLB-100-500P**IR1**

Type of AR Coat	Part Number	Wavelength Range [nm]	Transmittance [%]
Visible range	S-SLB-100-500PM	400 – 700	> Average 99
Near-infrared	S-SLB-100-500PIR1	633 – 1064	> Average 98.5
Infrared	S-SLB-100-500PIR2	750 – 1550	> Average 98.5

! Part of the above is an example of if you want to coat anti-reflective coating on the lens of the S-SLB-100-500P.
! Anti-reflection coating can be available to the lens of all of S-SLB.

Typical Transmittance Data

T: Transmission



Plano Convex Lens ϕ6 – ϕ25

Uncoated	How to specify the anti-reflection coating			Diameter ϕD [mm]	Focal length f [mm]	Edge thickness te [mm]	Center thickness tc [mm]	Back focal length fb [mm]	Radius of curvature r [mm]
Part Number	Visibe 400 – 700nm	Near-infrared 633 – 1064nm	Infrared 750 – 1550nm						
S-SLB-06-08P	M	IR1	IR2	ϕ6	8	1.0	2.3	6.5	4.15
S-SLB-06-10P	M	IR1	IR2	ϕ6	10	1.0	2.0	8.7	5.19
S-SLB-07-20P	M	IR1	IR2	ϕ7	20	1.7	2.3	18.5	10.38
S-SLB-07-40P	M	IR1	IR2	ϕ7	40	1.6	1.9	38.8	20.76
S-SLB-08-10P	M	IR1	IR2	ϕ8	10	1.5	3.4	7.8	5.19
S-SLB-08-15P	M	IR1	IR2	ϕ8	15	1.5	2.6	13.3	7.79
S-SLB-08-25P	M	IR1	IR2	ϕ8	25	1.5	2.1	23.6	12.98
S-SLB-08-40P	M	IR1	IR2	ϕ8	40	1.5	1.9	38.8	20.76
S-SLB-10-15P	M	IR1	IR2	ϕ10	15	2.0	3.8	12.5	7.79
S-SLB-10-20P	M	IR1	IR2	ϕ10	20	2.0	3.3	17.8	10.38
S-SLB-10-25P	M	IR1	IR2	ϕ10	25	2.0	3.0	23.0	12.98
S-SLB-10-30P	M	IR1	IR2	ϕ10	30	2.0	2.8	28.1	15.57
S-SLB-10-40P	M	IR1	IR2	ϕ10	40	2.0	2.6	38.3	20.76
S-SLB-10-50P	M	IR1	IR2	ϕ10	50	2.0	2.5	48.4	25.95
S-SLB-10-60P	M	IR1	IR2	ϕ10	60	2.0	2.4	58.4	31.14
S-SLB-10-70P	M	IR1	IR2	ϕ10	70	2.0	2.3	68.5	36.33
S-SLB-10-100P	M	IR1	IR2	ϕ10	100	2.0	2.2	98.5	51.90
S-SLB-15-20P	M	IR1	IR2	ϕ15	20	2.0	5.2	16.6	10.38
S-SLB-15-25P	M	IR1	IR2	ϕ15	25	2.0	4.4	22.1	12.98
S-SLB-15-30P	M	IR1	IR2	ϕ15	30	2.0	3.9	27.4	15.57
S-SLB-15-40P	M	IR1	IR2	ϕ15	40	2.0	3.4	37.8	20.76
S-SLB-15-50P	M	IR1	IR2	ϕ15	50	2.0	3.1	48.0	25.95
S-SLB-15-60P	M	IR1	IR2	ϕ15	60	2.0	2.9	58.1	31.14
S-SLB-15-70P	M	IR1	IR2	ϕ15	70	2.0	2.8	68.2	36.33
S-SLB-15-80P	M	IR1	IR2	ϕ15	80	2.0	2.7	78.2	41.52
S-SLB-15-90P	M	IR1	IR2	ϕ15	90	2.0	2.6	88.3	46.71
S-SLB-15-100P	M	IR1	IR2	ϕ15	100	2.0	2.5	98.3	51.90
S-SLB-15-120P	M	IR1	IR2	ϕ15	120	2.0	2.5	118.4	62.28
S-SLB-15-150P	M	IR1	IR2	ϕ15	150	2.0	2.4	148.4	77.85
S-SLB-20-25P	M	IR1	IR2	ϕ20	25	2.0	6.7	20.6	12.98
S-SLB-20-30P	M	IR1	IR2	ϕ20	30	2.0	5.6	26.3	15.57
S-SLB-20-40P	M	IR1	IR2	ϕ20	40	2.0	4.6	37.0	20.76
S-SLB-20-50P	M	IR1	IR2	ϕ20	50	2.0	4.0	47.4	25.95
S-SLB-20-60P	M	IR1	IR2	ϕ20	60	2.0	3.6	57.6	31.14
S-SLB-20-70P	M	IR1	IR2	ϕ20	70	2.0	3.4	67.8	36.33
S-SLB-20-80P	M	IR1	IR2	ϕ20	80	2.0	3.2	77.9	41.52
S-SLB-20-90P	M	IR1	IR2	ϕ20	90	2.0	3.1	88.0	46.71
S-SLB-20-100P	M	IR1	IR2	ϕ20	100	2.0	3.0	98.0	51.90
S-SLB-20-120P	M	IR1	IR2	ϕ20	120	2.0	2.8	118.2	62.28
S-SLB-20-150P	M	IR1	IR2	ϕ20	150	2.0	2.6	148.3	77.85
S-SLB-20-170P	M	IR1	IR2	ϕ20	170	2.0	2.6	168.2	88.23
S-SLB-20-200P	M	IR1	IR2	ϕ20	200	2.0	2.5	198.4	103.80
S-SLB-25-30P	M	IR1	IR2	ϕ25	30	2.0	8.3	24.5	15.57
S-SLB-25-35P	M	IR1	IR2	ϕ25	35	2.0	7.0	30.4	18.17
S-SLB-25-40P	M	IR1	IR2	ϕ25	40	2.0	6.2	36.0	20.76
S-SLB-25-50P	M	IR1	IR2	ϕ25	50	2.0	5.2	46.6	25.95
S-SLB-25-70P	M	IR1	IR2	ϕ25	70	2.0	4.2	67.2	36.33
S-SLB-25-80P	M	IR1	IR2	ϕ25	80	2.0	3.9	77.4	41.52
S-SLB-25-90P	M	IR1	IR2	ϕ25	90	2.0	3.7	87.6	46.71
S-SLB-25-100P	M	IR1	IR2	ϕ25	100	2.0	3.5	97.7	51.90
S-SLB-25-120P	M	IR1	IR2	ϕ25	120	2.0	3.3	117.8	62.28
S-SLB-25-150P	M	IR1	IR2	ϕ25	150	2.0	3.0	148.0	77.85
S-SLB-25-200P	M	IR1	IR2	ϕ25	200	2.0	2.8	198.2	103.80

Compatible Optic Mounts

LHF-10S, -15S, -20S, -25S / MLH-10, -15

Reasonable Plano Convex Lens | S-SLB-P/S-SLB-B-P

Catalog Code W3220

Plano Convex Lens ϕ30 – ϕ100

Uncoated	How to specify the anti-reflection coating			Diameter ϕD [mm]	Focal length f [mm]	Edge thickness te [mm]	Center thickness tc [mm]	Back focal length fb [mm]	Radius of curvature r [mm]
Part Number	Visibe 400 – 700nm	Near-infrared 633 – 1064nm	Infrared 750 – 1550nm						
S-SLB-30-35P	M	IR1	IR2	ϕ30	35	2.0	9.9	28.5	18.17
S-SLB-30-40P	M	IR1	IR2	ϕ30	40	2.0	8.4	34.5	20.76
S-SLB-30-50P	M	IR1	IR2	ϕ30	50	2.0	6.8	45.5	25.95
S-SLB-30-60P	M	IR1	IR2	ϕ30	60	2.0	5.9	56.1	31.14
S-SLB-30-70P	M	IR1	IR2	ϕ30	70	2.0	5.2	66.5	36.33
S-SLB-30-80P	M	IR1	IR2	ϕ30	80	2.0	4.8	76.8	41.52
S-SLB-30-90P	M	IR1	IR2	ϕ30	90	2.0	4.5	87.1	46.71
S-SLB-30-100P	M	IR1	IR2	ϕ30	100	2.0	4.2	97.2	51.90
S-SLB-30-120P	M	IR1	IR2	ϕ30	120	2.0	3.8	117.5	62.28
S-SLB-30-150P	M	IR1	IR2	ϕ30	150	2.0	3.5	147.7	77.85
S-SLB-30-170P	M	IR1	IR2	ϕ30	170	2.0	3.3	167.8	88.23
S-SLB-30-200P	M	IR1	IR2	ϕ30	200	2.0	3.1	198.0	103.80
S-SLB-30-250P	M	IR1	IR2	ϕ30	250	2.0	2.9	248.1	129.75
S-SLB-30-300P	M	IR1	IR2	ϕ30	300	2.0	2.7	298.2	155.70
S-SLB-30-350P	M	IR1	IR2	ϕ30	350	2.0	2.6	348.3	181.65
S-SLB-40-50P	M	IR1	IR2	ϕ40	50	2.0	11.4	42.5	25.95
S-SLB-40-60P	M	IR1	IR2	ϕ40	60	2.0	9.3	53.9	31.14
S-SLB-40-70P	M	IR1	IR2	ϕ40	70	2.0	8.0	64.7	36.33
S-SLB-40-80P	M	IR1	IR2	ϕ40	80	2.0	7.1	75.3	41.52
S-SLB-40-90P	M	IR1	IR2	ϕ40	90	2.0	6.5	85.7	46.71
S-SLB-40-100P	M	IR1	IR2	ϕ40	100	2.0	6.0	96.0	51.90
S-SLB-40-120P	M	IR1	IR2	ϕ40	120	2.0	5.3	116.5	62.28
S-SLB-40-150P	M	IR1	IR2	ϕ40	150	2.0	4.6	147	77.85
S-SLB-40-170P	M	IR1	IR2	ϕ40	170	2.0	4.3	167.2	88.23
S-SLB-40-200P	M	IR1	IR2	ϕ40	200	2.0	3.9	197.4	103.80
S-SLB-40-250P	M	IR1	IR2	ϕ40	250	2.0	3.6	247.7	129.75
S-SLB-40-1000P	M	IR1	IR2	ϕ40	1000	2.0	2.4	998.4	519.00
S-SLB-50-70P	M	IR1	IR2	ϕ50	70	3.0	13.0	61.5	36.33
S-SLB-50-90P	M	IR1	IR2	ϕ50	90	3.0	10.3	83.2	46.71
S-SLB-50-100P	M	IR1	IR2	ϕ50	100	3.0	9.4	93.8	51.90
S-SLB-50-120P	M	IR1	IR2	ϕ50	120	3.0	8.2	114.6	62.28
S-SLB-50-150P	M	IR1	IR2	ϕ50	150	3.0	7.1	145.3	77.85
S-SLB-50-170P	M	IR1	IR2	ϕ50	170	3.0	6.6	165.6	88.23
S-SLB-50-200P	M	IR1	IR2	ϕ50	200	3.0	6.1	196.0	103.80
S-SLB-60-70P	M	IR1	IR2	ϕ60	70	3.0	18.8	57.6	36.33
S-SLB-60-100P	M	IR1	IR2	ϕ60	100	3.0	12.5	91.7	51.90
S-SLB-60-120P	M	IR1	IR2	ϕ60	120	3.0	10.7	113.0	62.28
S-SLB-60-150P	M	IR1	IR2	ϕ60	150	3.0	9.0	144.1	77.85
S-SLB-80-150P	M	IR1	IR2	ϕ80	150	3.0	14.1	140.8	77.85
S-SLB-80-250P	M	IR1	IR2	ϕ80	250	3.0	9.3	243.9	129.75
S-SLB-100-150P	M	IR1	IR2	ϕ100	150	3.0	21.2	136.1	77.85
S-SLB-100-200P	M	IR1	IR2	ϕ100	200	3.0	15.8	189.6	103.80
S-SLB-100-250P	M	IR1	IR2	ϕ100	250	3.0	13.0	241.4	129.75
S-SLB-100-300P	M	IR1	IR2	ϕ100	300	3.0	11.2	292.6	155.70
S-SLB-100-500P	M	IR1	IR2	ϕ100	500	3.0	7.9	494.8	259.50
S-SLB-100-1000P	M	IR1	IR2	ϕ100	1000	3.0	5.4	996.4	519.00

Compatible Optic Mounts

LHF-30S, -40S, -50S, -60AS, -80, -100

Biconvex Lens

Uncoated	How to specify the anti-reflection coating			Diameter ϕD [mm]	Focal length f [mm]	Edge thickness te [mm]	Center thickness tc [mm]	Back focal length fb [mm]	Radius of curvature r [mm]
Part Number	Visibe 400 – 700nm	Near-infrared 633 – 1064nm	Infrared 750 – 1550nm						
S-SLB-05B-08P	**M**	**IR1**	**IR2**	ϕ5	8.4	1.4	2.1	7.6	8.30
S-SLB-05B-20P	**M**	**IR1**	**IR2**	ϕ5	20.2	1.1	1.4	19.8	20.76
S-SLB-06B-06P	**M**	**IR1**	**IR2**	ϕ6	6.4	1.0	2.5	5.6	6.23
S-SLB-08B-08P	**M**	**IR1**	**IR2**	ϕ8	8.6	1.5	3.6	7.4	8.30
S-SLB-10B-10P	**M**	**IR1**	**IR2**	ϕ10	10.8	2.0	4.6	9.2	10.38
S-SLB-10B-15P	**M**	**IR1**	**IR2**	ϕ10	15.6	2.0	3.6	14.4	15.57
S-SLB-10B-20P	**M**	**IR1**	**IR2**	ϕ10	20.5	2.0	3.2	19.5	20.76
S-SLB-10B-40P	**M**	**IR1**	**IR2**	ϕ10	40.4	2.0	2.6	39.6	41.52
S-SLB-15B-15P	**M**	**IR1**	**IR2**	ϕ15	16	2.0	5.9	14.0	15.57
S-SLB-15B-20P	**M**	**IR1**	**IR2**	ϕ15	20.8	2.0	4.8	19.2	20.76
S-SLB-15B-30P	**M**	**IR1**	**IR2**	ϕ15	30.6	2.0	3.8	29.4	31.14
S-SLB-15B-40P	**M**	**IR1**	**IR2**	ϕ15	40.6	2.0	3.4	39.4	41.52
S-SLB-20B-30P	**M**	**IR1**	**IR2**	ϕ20	31	2.0	5.3	29.1	31.14
S-SLB-20B-40P	**M**	**IR1**	**IR2**	ϕ20	40.7	2.0	4.4	39.3	41.52
S-SLB-20B-50P	**M**	**IR1**	**IR2**	ϕ20	50.7	2.0	3.9	49.3	51.90
S-SLB-25B-35P	**M**	**IR1**	**IR2**	ϕ25	36.1	2.0	6.4	33.9	36.33
S-SLB-25B-50P	**M**	**IR1**	**IR2**	ϕ25	50.8	2.0	5.1	49.2	51.90
S-SLB-25B-60P	**M**	**IR1**	**IR2**	ϕ25	60.8	2.0	4.5	59.2	62.28
S-SLB-25B-70P	**M**	**IR1**	**IR2**	ϕ25	70.7	2.0	4.2	69.3	72.66
S-SLB-30B-30P	**M**	**IR1**	**IR2**	ϕ30	31.7	2.0	9.7	28.3	31.14
S-SLB-30B-40P	**M**	**IR1**	**IR2**	ϕ30	41.3	2.0	7.6	38.7	41.52
S-SLB-40B-40P	**M**	**IR1**	**IR2**	ϕ40	42.1	2.0	12.3	37.9	41.52
S-SLB-40B-50P	**M**	**IR1**	**IR2**	ϕ40	51.7	2.0	10.0	48.3	51.90
S-SLB-40B-60P	**M**	**IR1**	**IR2**	ϕ40	61.4	2.0	8.6	58.6	62.28
S-SLB-40B-100P	**M**	**IR1**	**IR2**	ϕ40	101	2.0	5.9	99.0	103.80
S-SLB-40B-150P	**M**	**IR1**	**IR2**	ϕ40	150.8	2.0	4.6	149.2	155.70
S-SLB-50B-150P	**M**	**IR1**	**IR2**	ϕ50	151.2	3.0	7.0	148.8	155.70
S-SLB-50B-200P	**M**	**IR1**	**IR2**	ϕ50	201	3.0	6.0	199.0	207.60

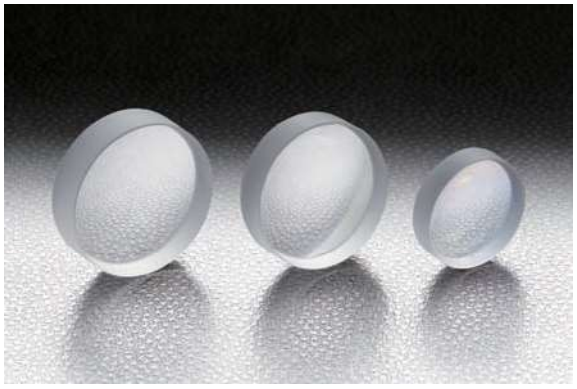
Compatible Optic Mounts

LHF-10S, -15S, -20S, -25S, -30S, -40S, -50S / MLH-10, -15

Reasonable Plano Concave Lens | S-SLB-N/S-SLB-B-N

RoHS

This lower cost product offering of Plano Convex Lenses has only minimal reduction in quality and is perfect for most applications.
It can be used in an optical systems such as observation or lighting applications when the higher surface quality Plano Concave Lens (SLB-N) is not required.



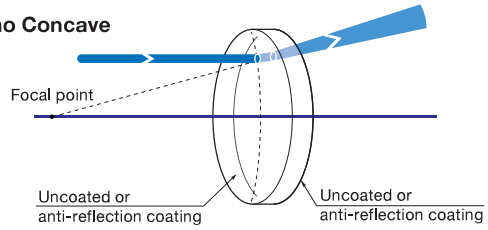
- It has the same specification of Plano Convex Lens (SLB-N) except the surface quality and is ideal for experiments and applications where high-precision is not required.
- There are two types of lens offer, a Plano convex lens with low spherical aberration and a biconvex lens that is used to shorten the focal length.
- In addition to uncoated products, there are three types of anti-reflection coating for visible, near-infrared, and infrared.

Specifications

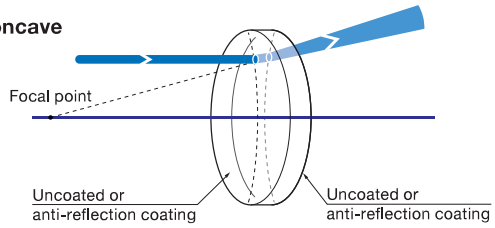
Material	BK7
Design Wavelength	546.1nm
Refractive Index	n_e=1.519
Centration	<3′
Coating	Uncoated: the end of the part number 'N' Anti-reflection coating: the end of the part number 'NM', 'NIR1', 'NIR2'
Laser Damage Threshold	Anti-reflection coating: 4J/cm^2 Laser pulse with 10ns, repetition frequency 20Hz
Clear Aperture	90% of actual aperture: Uncoated 85% of actual aperture: with coating, ϕ10≦D 83% of actual aperture: with coating, D<ϕ10
Surface Quality (Scratch–Dig)	60–40

Schematic

Plano Concave



Biconcave



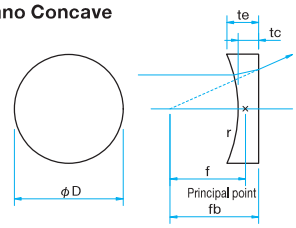
Attention

- Biconcave lens has a chromatic aberration, and the focal length will vary depending on the wavelength. Please check the "wavelength characteristic of the focal length data" on the Web for the focal lengths of each wavelength. WEB Reference Catalog Code W3050
- Transmissions losses due to reflection off the front and rear surfaces of the lens can be minimized by coating the surfaces. Consult our Sales Division for anti-reflection coatings suitable for your application.
- The outer edge of the concave side is chamfered and the result is possibility that the lens may have a smaller edge thickness for this design.

Outline Drawing

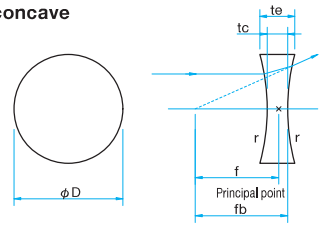
(in mm)

Plano Concave



●Tolerance
Diameter $\phi D^{+0}_{-0.1}$
Focal length ±1%
Thickness tc ±0.15

Biconcave



●Tolerance
Diameter $\phi D^{+0}_{-0.1}$
Focal length ±1%
Thickness tc ±0.15

How to specify the anti-reflection coating

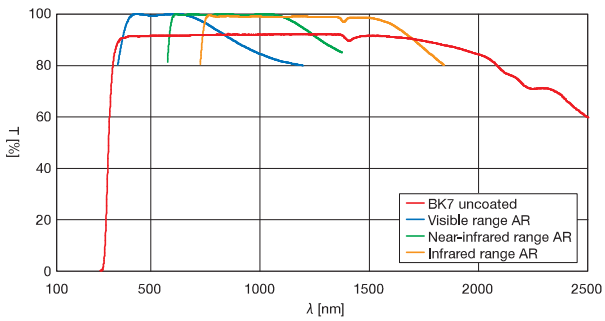
In case of specifying a anti-reflection coating 633nm – 1064nm to near infrared lens of S-SLB-30-200N.
⇒ S-SLB-30-200N**IR1**

Type of AR Coat	Part Number	Wavelength Range [nm]	Transmittance [%]
Visible range	S-SLB-30-200NM	400 – 700	> Average 99
Near-infrared	S-SLB-30-200NIR1	633 – 1064	> Average 98.5
Infrared	S-SLB-30-200NIR2	750 – 1550	> Average 98.5

! Part of the above is an example of if you want to coat anti-reflective coating on the lens of the S-SLB-30-200N.
! Anti-reflection coating can be available to the lens of all of S-SLB.

Typical Transmittance Data

T: Transmission



Plano Concave Lens

Uncoated	How to specify the anti-reflection coating			Diameter ϕD [mm]	Focal length f [mm]	Edge thickness te [mm]	Center thickness tc [mm]	Back focal length fb [mm]	Radius of curvature r [mm]
Part Number	Visibe 400 – 700nm	Near-infrared 633 – 1064nm	Infrared 750 – 1550nm						
S-SLB-10-15N	**M**	**IR1**	**IR2**	ϕ10	–15	3.8	2.0	–16.3	7.79
S-SLB-10-20N	**M**	**IR1**	**IR2**	ϕ10	–20	3.3	2.0	–21.3	10.38
S-SLB-10-30N	**M**	**IR1**	**IR2**	ϕ10	–30	2.8	2.0	–31.3	15.57
S-SLB-10-100N	**M**	**IR1**	**IR2**	ϕ10	–100	2.2	2.0	–101.3	51.90
S-SLB-15-25N	**M**	**IR1**	**IR2**	ϕ15	–25	4.4	2.0	–26.3	12.98
S-SLB-15-30N	**M**	**IR1**	**IR2**	ϕ15	–30	3.9	2.0	–31.3	15.57
S-SLB-20-25N	**M**	**IR1**	**IR2**	ϕ20	–25	6.7	2.0	–26.3	12.98
S-SLB-20-30N	**M**	**IR1**	**IR2**	ϕ20	–30	5.6	2.0	–31.3	15.57
S-SLB-20-40N	**M**	**IR1**	**IR2**	ϕ20	–40	4.6	2.0	–41.3	20.76
S-SLB-20-50N	**M**	**IR1**	**IR2**	ϕ20	–50	4.0	2.0	–51.3	25.95
S-SLB-20-60N	**M**	**IR1**	**IR2**	ϕ20	–60	3.6	2.0	–61.3	31.14
S-SLB-25-40N	**M**	**IR1**	**IR2**	ϕ25	–40	6.2	2.0	–41.3	20.76
S-SLB-30-60N	**M**	**IR1**	**IR2**	ϕ30	–60	5.9	2.0	–61.3	31.14
S-SLB-30-200N	**M**	**IR1**	**IR2**	ϕ30	–200	3.1	2.0	–201.3	103.80

Biconcave Lens

Uncoated	How to specify the anti-reflection coating			Diameter ϕD [mm]	Focal length f [mm]	Edge thickness te [mm]	Center thickness tc [mm]	Back focal length fb [mm]	Radius of curvature r [mm]
Part Number	Visibe 400 – 700nm	Near-infrared 633 – 1064nm	Infrared 750 – 1550nm						
S-SLB-10B-10N	**M**	**IR1**	**IR2**	ϕ10	–9.7	4.6	2.0	–10.3	10.38
S-SLB-15B-15N	**M**	**IR1**	**IR2**	ϕ15	–14.7	5.9	2.0	–15.3	15.57
S-SLB-20B-50N	**M**	**IR1**	**IR2**	ϕ20	–49.7	3.9	2.0	–50.3	51.90
S-SLB-30B-100N	**M**	**IR1**	**IR2**	ϕ30	–99.7	4.2	2.0	–100.3	103.80

Compatible Optic Mounts

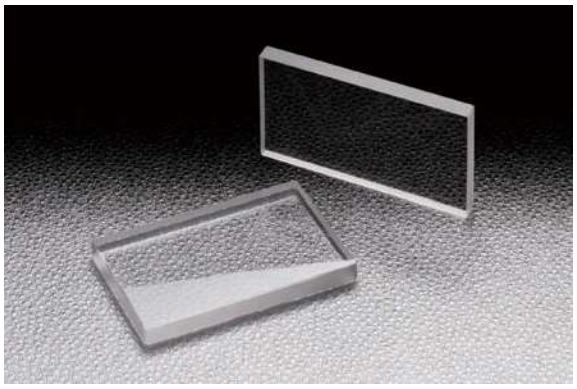
LHF-10S, -15S, -20S, -25S, -30S

Cylindrical Plano Convex Lenses | CLB-P/CLSQ-P

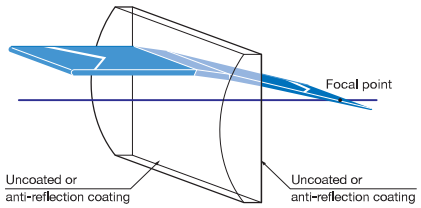
RoHS

Cylindrical plano-convex lens has a convex curvature in the vertical direction and has no curvature in the horizontal direction.
They are often used to condense a laser beam into a thin line.

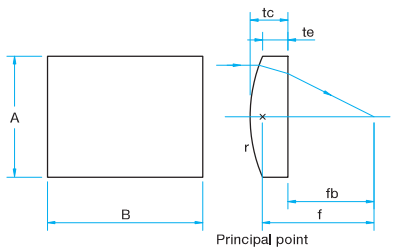
- Plano Convex Cylindrical lenses are available in BK7 for from visible range to infrared wavelength range and high-strength synthetic fused silica which has high laser damage threshold used in applications with 350nm ultraviolet light.
- BK7 lenses are also available with three types of anti-reflection coatings, visible wavelength range, in the near-infrared range and in the infrared range.
- Cylindrical lenses are often used in an optical system to change the shape and aspect ratio of the illumination light beam.



Schematic



Outline Drawing (in mm)



●Tolerance
Length A $^{+0}_{-0.1}$
(B≦50) B $^{+0}_{-0.1}$
(B=70) B $^{+0}_{-0.15}$
(B=100) B $^{+0}_{-0.2}$
Thickness tc±0.2

Specifications

Material	CLB: BK7 CLSQ: Synthetic fused silica
Design wavelength	546.1nm
Refractive index	BK7: n_e=1.519 Synthetic fused silica: n_e=1.460
Coating	Uncoated: the end of the part number 'P' Anti-reflection coating: the end of the part number 'PM', 'PIR1', 'PIR2'
Laser Damage Threshold	Anti-reflection coating: 4J/cm^2 Laser pulse with 10ns, repetition frequency 20Hz
Clear aperture	90% of square or rectangle to actual dimension
Surface Quality (Scratch–Dig)	20–10

Guide

- ▶Lenses are available in a large selection and in custom sizes and focal lengths.
- ▶In addition to our standard coating we offer custom anti-reflective coating at specific wavelengths.
- ▶We offer holders to mount our catalog cylindrical lenses, consult our Sales Division for assistance in your selection (CHA).
  WEB Reference Catalog Code W4022

Attention

- ▶Plano-convex cylindrical lens have chromatic aberration, and the focal length will vary depending on the wavelength. Please check the "wavelength characteristic of the focal length data" on the Web for the focal lengths of each wavelength. WEB Reference Catalog Code W3062
- ▶When using a plano-convex cylindrical lens parallel light should incident to the convex side first. There is a possibility that the spherical aberration will increase and optical performance of the system will be degrated if use in reverse.
- ▶Transmissions losses due to reflection off the front and rear surfaces of the lens can be minimized by coating the surfaces. Consult our Sales Division for anti-reflection coatings suitable for your application.

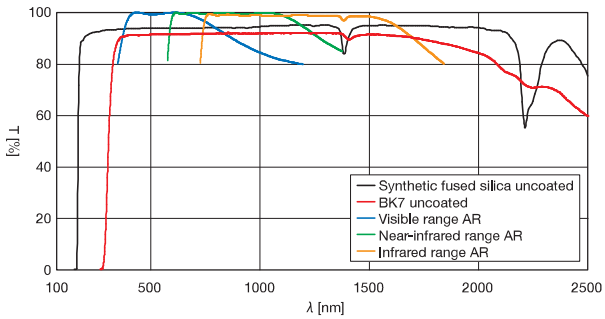
How to specify the anti-reflection coating

In case of specifying a anti-reflection coating 633nm – 1064nm to near infrared lens of CLB-30100-500P.
⇒ CLB-30100-500P**IR1**

Type of AR Coat	Part Number	Wavelength Range [nm]	Transmittance [%]
Visible range	CLB-30100-500PM	400 – 700	> Average 99
Near-infrared	CLB-30100-500PIR1	633 – 1064	> Average 98.5
Infrared	CLB-30100-500PIR2	750 – 1550	> Average 98.5

! Part of the above is an example of if you want to coat anti-reflective coating on the lens of the CLB-30100-500P.
! Anti-reflection coating can be available to the lens of all of CLB.

Typical Transmittance Data T: Transmission



Compatible Optic Mounts

CHA-25, -60, -130

BK7 10×10mm – 20×30mm

Uncoated	How to specify the anti-reflection coating			A×B [mm]	Focal length f [mm]	Edge thickness te [mm]	Center thickness tc [mm]	Back focal length fb [mm]	Radius of curvature r [mm]
Part Number	Visibe 400 – 700nm	Near-infrared 633 – 1064nm	Infrared 750 – 1550nm						
CLB-1010-15P	M	IR1	IR2	10×10	15	2.2	4.0	12.4	7.79
CLB-1010-20P	M	IR1	IR2	10×10	20	1.7	3.0	18.0	10.38
CLB-1010-25P	M	IR1	IR2	10×10	25	2.0	3.0	23.0	12.98
CLB-1010-30P	M	IR1	IR2	10×10	30	2.2	3.0	28.0	15.57
CLB-1010-40P	M	IR1	IR2	10×10	40	2.4	3.0	38.0	20.76
CLB-1020-15P	M	IR1	IR2	10×20	15	2.2	4.0	12.4	7.79
CLB-1020-20P	M	IR1	IR2	10×20	20	1.7	3.0	18.0	10.38
CLB-1020-25P	M	IR1	IR2	10×20	25	2.0	3.0	23.0	12.98
CLB-1020-30P	M	IR1	IR2	10×20	30	2.2	3.0	28.0	15.57
CLB-1020-40P	M	IR1	IR2	10×20	40	2.4	3.0	38.0	20.76
CLB-1070-15P	M	IR1	IR2	10×70	15	2.2	4.0	12.4	7.79
CLB-1070-20P	M	IR1	IR2	10×70	20	1.7	3.0	18.0	10.38
CLB-1070-25P	M	IR1	IR2	10×70	25	2.0	3.0	23.0	12.98
CLB-1070-30P	M	IR1	IR2	10×70	30	2.2	3.0	28.0	15.57
CLB-1070-40P	M	IR1	IR2	10×70	40	2.4	3.0	38.0	20.76
CLB-1515-20P	M	IR1	IR2	15×15	20	1.8	5.0	16.7	10.38
CLB-1515-25P	M	IR1	IR2	15×15	25	2.6	5.0	21.7	12.98
CLB-1515-30P	M	IR1	IR2	15×15	30	2.1	4.0	27.4	15.57
CLB-1515-40P	M	IR1	IR2	15×15	40	2.6	4.0	37.4	20.76
CLB-1525-20P	M	IR1	IR2	15×25	20	1.8	5.0	16.7	10.38
CLB-1525-25P	M	IR1	IR2	15×25	25	2.6	5.0	21.7	12.98
CLB-1525-30P	M	IR1	IR2	15×25	30	2.1	4.0	27.4	15.57
CLB-1525-40P	M	IR1	IR2	15×25	40	2.6	4.0	37.4	20.76
CLB-1570-20P	M	IR1	IR2	15×70	20	1.8	5.0	16.7	10.38
CLB-1570-25P	M	IR1	IR2	15×70	25	2.6	5.0	21.7	12.98
CLB-1570-30P	M	IR1	IR2	15×70	30	2.1	4.0	27.4	15.57
CLB-1570-40P	M	IR1	IR2	15×70	40	2.6	4.0	37.4	20.76
CLB-2020-25P	M	IR1	IR2	20×20	25	2.3	7.0	20.4	12.98
CLB-2020-30P	M	IR1	IR2	20×20	30	2.4	6.0	26.1	15.57
CLB-2020-40P	M	IR1	IR2	20×20	40	2.4	5.0	36.7	20.76
CLB-2020-50P	M	IR1	IR2	20×20	50	2.0	4.0	47.4	25.95
CLB-2020-60P	M	IR1	IR2	20×20	60	2.4	4.0	57.3	31.14
CLB-2020-70P	M	IR1	IR2	20×20	70	2.6	4.0	67.4	36.33
CLB-2020-80P	M	IR1	IR2	20×20	80	2.8	4.0	77.4	41.52
CLB-2020-100P	M	IR1	IR2	20×20	100	3.0	4.0	97.4	51.90
CLB-2020-130P	M	IR1	IR2	20×20	130	3.3	4.0	127.4	67.47
CLB-2020-150P	M	IR1	IR2	20×20	150	3.4	4.0	147.4	77.85
CLB-2020-200P	M	IR1	IR2	20×20	200	3.5	4.0	197.4	103.80
CLB-2020-250P	M	IR1	IR2	20×20	250	3.6	4.0	247.4	129.75
CLB-2020-300P	M	IR1	IR2	20×20	300	3.7	4.0	297.4	155.70
CLB-2020-400P	M	IR1	IR2	20×20	400	3.8	4.0	397.4	207.60
CLB-2020-500P	M	IR1	IR2	20×20	500	3.8	4.0	497.4	259.50
CLB-2020-700P	M	IR1	IR2	20×20	700	3.9	4.0	697.4	363.30
CLB-2020-1000P	M	IR1	IR2	20×20	1000	3.9	4.0	997.4	519.00
CLB-2030-25P	M	IR1	IR2	20×30	25	2.3	7.0	20.4	12.98
CLB-2030-30P	M	IR1	IR2	20×30	30	2.4	6.0	26.1	15.57
CLB-2030-40P	M	IR1	IR2	20×30	40	2.4	5.0	36.7	20.76
CLB-2030-50P	M	IR1	IR2	20×30	50	2.0	4.0	47.4	25.95
CLB-2030-60P	M	IR1	IR2	20×30	60	2.4	4.0	57.3	31.14
CLB-2030-70P	M	IR1	IR2	20×30	70	2.6	4.0	67.4	36.33
CLB-2030-80P	M	IR1	IR2	20×30	80	2.8	4.0	77.4	41.52
CLB-2030-100P	M	IR1	IR2	20×30	100	3.0	4.0	97.4	51.90
CLB-2030-130P	M	IR1	IR2	20×30	130	3.3	4.0	127.4	67.47
CLB-2030-150P	M	IR1	IR2	20×30	150	3.4	4.0	147.4	77.85
CLB-2030-200P	M	IR1	IR2	20×30	200	3.5	4.0	197.4	103.80
CLB-2030-250P	M	IR1	IR2	20×30	250	3.6	4.0	247.4	129.75
CLB-2030-300P	M	IR1	IR2	20×30	300	3.7	4.0	297.4	155.70
CLB-2030-400P	M	IR1	IR2	20×30	400	3.8	4.0	397.4	207.60
CLB-2030-500P	M	IR1	IR2	20×30	500	3.8	4.0	497.4	259.50
CLB-2030-700P	M	IR1	IR2	20×30	700	3.9	4.0	697.4	363.30
CLB-2030-1000P	M	IR1	IR2	20×30	1000	3.9	4.0	997.4	519.00

Cylindrical Plano Convex Lenses | CLB-P/CLSQ-P

Catalog Code W3063

BK7 20×40mm – 30×30mm

Uncoated	How to specify the anti-reflection coating			A×B [mm]	Focal length f [mm]	Edge thickness te [mm]	Center thickness tc [mm]	Back focal length fb [mm]	Radius of curvature r [mm]
Part Number	Visibe 400 – 700nm	Near-infrared 633 – 1064nm	Infrared 750 – 1550nm						
CLB-2040-25P	M	IR1	IR2	20×40	25	2.3	7.0	20.4	12.98
CLB-2040-30P	M	IR1	IR2	20×40	30	2.4	6.0	26.1	15.57
CLB-2040-40P	M	IR1	IR2	20×40	40	2.4	5.0	36.7	20.76
CLB-2040-50P	M	IR1	IR2	20×40	50	2.0	4.0	47.4	25.95
CLB-2040-60P	M	IR1	IR2	20×40	60	2.4	4.0	57.3	31.14
CLB-2040-70P	M	IR1	IR2	20×40	70	2.6	4.0	67.4	36.33
CLB-2040-80P	M	IR1	IR2	20×40	80	2.8	4.0	77.4	41.52
CLB-2040-100P	M	IR1	IR2	20×40	100	3.0	4.0	97.4	51.90
CLB-2040-130P	M	IR1	IR2	20×40	130	3.3	4.0	127.4	67.47
CLB-2040-150P	M	IR1	IR2	20×40	150	3.4	4.0	147.4	77.85
CLB-2040-200P	M	IR1	IR2	20×40	200	3.5	4.0	197.4	103.80
CLB-2040-250P	M	IR1	IR2	20×40	250	3.6	4.0	247.4	129.75
CLB-2040-300P	M	IR1	IR2	20×40	300	3.7	4.0	297.4	155.70
CLB-2040-400P	M	IR1	IR2	20×40	400	3.8	4.0	397.4	207.60
CLB-2040-500P	M	IR1	IR2	20×40	500	3.8	4.0	497.4	259.50
CLB-2040-700P	M	IR1	IR2	20×40	700	3.9	4.0	697.4	363.30
CLB-2040-1000P	M	IR1	IR2	20×40	1000	3.9	4.0	997.4	519.00
CLB-2050-100P	M	IR1	IR2	20×50	100	3.0	4.0	97.4	51.90
CLB-2050-130P	M	IR1	IR2	20×50	130	3.3	4.0	127.4	67.47
CLB-2050-150P	M	IR1	IR2	20×50	150	3.4	4.0	147.4	77.85
CLB-2050-200P	M	IR1	IR2	20×50	200	3.5	4.0	197.4	103.80
CLB-2050-250P	M	IR1	IR2	20×50	250	3.6	4.0	247.4	129.75
CLB-2050-300P	M	IR1	IR2	20×50	300	3.7	4.0	297.4	155.70
CLB-2050-400P	M	IR1	IR2	20×50	400	3.8	4.0	397.4	207.60
CLB-2050-500P	M	IR1	IR2	20×50	500	3.8	4.0	497.4	259.50
CLB-2050-700P	M	IR1	IR2	20×50	700	3.9	4.0	697.4	363.30
CLB-2050-1000P	M	IR1	IR2	20×50	1000	3.9	4.0	997.4	519.00
CLB-2070-25P	M	IR1	IR2	20×70	25	2.3	7.0	20.4	12.98
CLB-2070-30P	M	IR1	IR2	20×70	30	2.4	6.0	26.1	15.57
CLB-2070-40P	M	IR1	IR2	20×70	40	2.4	5.0	36.7	20.76
CLB-2070-50P	M	IR1	IR2	20×70	50	2.0	4.0	47.4	25.95
CLB-2070-60P	M	IR1	IR2	20×70	60	2.4	4.0	57.3	31.14
CLB-2070-70P	M	IR1	IR2	20×70	70	2.6	4.0	67.4	36.33
CLB-2070-80P	M	IR1	IR2	20×70	80	2.8	4.0	77.4	41.52
CLB-2070-100P	M	IR1	IR2	20×70	100	3.0	4.0	97.4	51.90
CLB-20100-130P	M	IR1	IR2	20×100	130	3.3	4.0	127.4	67.47
CLB-20100-150P	M	IR1	IR2	20×100	150	3.4	4.0	147.4	77.85
CLB-20100-200P	M	IR1	IR2	20×100	200	3.5	4.0	197.4	103.80
CLB-20100-300P	M	IR1	IR2	20×100	300	3.7	4.0	297.4	155.70
CLB-3030-50P	M	IR1	IR2	30×30	50	2.2	7.0	45.4	25.95
CLB-3030-60P	M	IR1	IR2	30×30	60	2.1	6.0	56.0	31.14
CLB-3030-70P	M	IR1	IR2	30×30	70	1.8	5.0	66.7	36.33
CLB-3030-80P	M	IR1	IR2	30×30	80	2.2	5.0	76.7	41.52
CLB-3030-100P	M	IR1	IR2	30×30	100	2.8	5.0	96.7	51.90
CLB-3030-130P	M	IR1	IR2	30×30	130	3.3	5.0	126.7	67.47
CLB-3030-150P	M	IR1	IR2	30×30	150	3.5	5.0	146.7	77.85
CLB-3030-200P	M	IR1	IR2	30×30	200	3.9	5.0	196.7	103.80
CLB-3030-250P	M	IR1	IR2	30×30	250	4.0	5.0	246.7	129.75
CLB-3030-300P	M	IR1	IR2	30×30	300	4.3	5.0	296.7	155.70
CLB-3030-400P	M	IR1	IR2	30×30	400	4.5	5.0	396.7	207.60
CLB-3030-500P	M	IR1	IR2	30×30	500	4.6	5.0	496.7	259.50
CLB-3030-700P	M	IR1	IR2	30×30	700	4.7	5.0	696.7	363.30
CLB-3030-1000P	M	IR1	IR2	30×30	1000	4.8	5.0	996.7	519.00

BK7 30×40mm – 30×100mm

Uncoated	How to specify the anti-reflection coating			A×B [mm]	Focal length f [mm]	Edge thickness te [mm]	Center thickness tc [mm]	Back focal length fb [mm]	Radius of curvature r [mm]
Part Number	Visibe 400 – 700nm	Near-infrared 633 – 1064nm	Infrared 750 – 1550nm						
CLB-3040-50P	M	IR1	IR2	30×40	50	2.2	7.0	45.4	25.95
CLB-3040-60P	M	IR1	IR2	30×40	60	2.1	6.0	56.0	31.14
CLB-3040-70P	M	IR1	IR2	30×40	70	1.8	5.0	66.7	36.33
CLB-3040-80P	M	IR1	IR2	30×40	80	2.2	5.0	76.7	41.52
CLB-3040-100P	M	IR1	IR2	30×40	100	2.8	5.0	96.7	51.90
CLB-3040-130P	M	IR1	IR2	30×40	130	3.3	5.0	126.7	67.47
CLB-3040-150P	M	IR1	IR2	30×40	150	3.5	5.0	146.7	77.85
CLB-3040-200P	M	IR1	IR2	30×40	200	3.9	5.0	196.7	103.80
CLB-3040-250P	M	IR1	IR2	30×40	250	4.0	5.0	246.7	129.75
CLB-3040-300P	M	IR1	IR2	30×40	300	4.3	5.0	296.7	155.70
CLB-3040-400P	M	IR1	IR2	30×40	400	4.5	5.0	396.7	207.60
CLB-3040-500P	M	IR1	IR2	30×40	500	4.6	5.0	496.7	259.50
CLB-3040-700P	M	IR1	IR2	30×40	700	4.7	5.0	696.7	363.30
CLB-3040-1000P	M	IR1	IR2	30×40	1000	4.8	5.0	996.7	519.00
CLB-3050-50P	M	IR1	IR2	30×50	50	2.2	7.0	45.4	25.95
CLB-3050-60P	M	IR1	IR2	30×50	60	2.1	6.0	56.0	31.14
CLB-3050-70P	M	IR1	IR2	30×50	70	1.8	5.0	66.7	36.33
CLB-3050-80P	M	IR1	IR2	30×50	80	2.2	5.0	76.7	41.52
CLB-3050-100P	M	IR1	IR2	30×50	100	2.8	5.0	96.7	51.90
CLB-3050-130P	M	IR1	IR2	30×50	130	3.3	5.0	126.7	67.47
CLB-3050-150P	M	IR1	IR2	30×50	150	3.5	5.0	146.7	77.85
CLB-3050-200P	M	IR1	IR2	30×50	200	3.9	5.0	196.7	103.80
CLB-3050-250P	M	IR1	IR2	30×50	250	4.0	5.0	246.7	129.75
CLB-3050-300P	M	IR1	IR2	30×50	300	4.3	5.0	296.7	155.70
CLB-3050-400P	M	IR1	IR2	30×50	400	4.5	5.0	396.7	207.60
CLB-3050-500P	M	IR1	IR2	30×50	500	4.6	5.0	496.7	259.50
CLB-3050-700P	M	IR1	IR2	30×50	700	4.7	5.0	696.7	363.30
CLB-3050-1000P	M	IR1	IR2	30×50	1000	4.8	5.0	996.7	519.00
CLB-3070-50P	M	IR1	IR2	30×70	50	2.2	7.0	45.4	25.95
CLB-3070-60P	M	IR1	IR2	30×70	60	2.1	6.0	56.0	31.14
CLB-3070-70P	M	IR1	IR2	30×70	70	1.8	5.0	66.7	36.33
CLB-3070-80P	M	IR1	IR2	30×70	80	2.2	5.0	76.7	41.52
CLB-3070-100P	M	IR1	IR2	30×70	100	2.8	5.0	96.7	51.90
CLB-30100-130P	M	IR1	IR2	30×100	130	3.3	5.0	126.7	67.47
CLB-30100-150P	M	IR1	IR2	30×100	150	3.5	5.0	146.7	77.85
CLB-30100-200P	M	IR1	IR2	30×100	200	3.9	5.0	196.7	103.80

Cylindrical Plano Convex Lenses | CLB-P/CLSQ-P

Catalog Code W3065

Synthetic fused silica 10×10mm – 20×30mm

Part Number	A×B [mm]	Focal length f [mm]	Edge thickness te [mm]	Center thickness tc [mm]	Back focal length fb [mm]	Radius of curvature r [mm]
CLSQ-1010-15P	10×10	15	1.9	4.0	12.3	6.90
CLSQ-1010-20P	10×10	20	1.5	3.0	17.9	9.20
CLSQ-1010-25P	10×10	25	1.9	3.0	22.9	11.50
CLSQ-1010-30P	10×10	30	2.1	3.0	27.9	13.80
CLSQ-1010-40P	10×10	40	2.3	3.0	37.9	18.40
CLSQ-1020-15P	10×20	15	1.9	4.0	12.3	6.90
CLSQ-1020-20P	10×20	20	1.5	3.0	17.9	9.20
CLSQ-1020-25P	10×20	25	1.9	3.0	22.9	11.50
CLSQ-1020-30P	10×20	30	2.1	3.0	27.9	13.80
CLSQ-1020-40P	10×20	40	2.3	3.0	37.9	18.40
CLSQ-1070-15P	10×70	15	1.9	4.0	12.3	6.90
CLSQ-1070-20P	10×70	20	1.5	3.0	17.9	9.20
CLSQ-1070-25P	10×70	25	1.9	3.0	22.9	11.50
CLSQ-1070-30P	10×70	30	2.1	3.0	27.9	13.80
CLSQ-1070-40P	10×70	40	2.3	3.0	37.9	18.40
CLSQ-1515-20P	15×15	20	2.1	6.0	16.0	9.20
CLSQ-1515-25P	15×15	25	2.2	5.0	21.6	11.50
CLSQ-1515-30P	15×15	30	1.8	4.0	27.3	13.80
CLSQ-1515-40P	15×15	40	2.4	4.0	37.3	18.40
CLSQ-1525-20P	15×25	20	2.1	6.0	16.0	9.20
CLSQ-1525-25P	15×25	25	2.2	5.0	21.6	11.50
CLSQ-1525-30P	15×25	30	1.8	4.0	27.3	13.80
CLSQ-1525-40P	15×25	40	2.4	4.0	37.3	18.40
CLSQ-1570-20P	15×70	20	2.1	6.0	16.0	9.20
CLSQ-1570-25P	15×70	25	2.2	5.0	21.6	11.50
CLSQ-1570-30P	15×70	30	1.8	4.0	27.3	13.80
CLSQ-1570-40P	15×70	40	2.4	4.0	37.3	18.40
CLSQ-2020-25P	20×20	25	1.2	7.0	20.2	11.50
CLSQ-2020-30P	20×20	30	1.7	6.0	25.9	13.80
CLSQ-2020-40P	20×20	40	2.0	5.0	36.6	18.40
CLSQ-2020-50P	20×20	50	1.7	4.0	47.3	23.00
CLSQ-2020-60P	20×20	60	2.1	4.0	57.3	27.60
CLSQ-2020-70P	20×20	70	2.4	4.0	67.3	32.20
CLSQ-2020-80P	20×20	80	2.6	4.0	77.3	36.80
CLSQ-2020-100P	20×20	100	2.9	4.0	97.3	46.00
CLSQ-2020-130P	20×20	130	3.2	4.0	127.3	59.80
CLSQ-2020-150P	20×20	150	3.3	4.0	147.3	69.00
CLSQ-2020-200P	20×20	200	3.5	4.0	197.3	92.00
CLSQ-2020-250P	20×20	250	3.6	4.0	247.3	115.00
CLSQ-2020-300P	20×20	300	3.6	4.0	297.3	138.00
CLSQ-2020-400P	20×20	400	3.7	4.0	397.3	184.00
CLSQ-2020-500P	20×20	500	3.7	4.0	497.3	230.00
CLSQ-2020-700P	20×20	700	3.8	4.0	697.3	322.00
CLSQ-2020-1000P	20×20	1000	3.8	4.0	997.3	460.00
CLSQ-2030-25P	20×30	25	1.2	7.0	20.2	11.50
CLSQ-2030-30P	20×30	30	1.7	6.0	25.9	13.80
CLSQ-2030-40P	20×30	40	2.0	5.0	36.6	18.40
CLSQ-2030-50P	20×30	50	1.7	4.0	47.3	23.00
CLSQ-2030-60P	20×30	60	2.1	4.0	57.3	27.60
CLSQ-2030-70P	20×30	70	2.4	4.0	67.3	32.20
CLSQ-2030-80P	20×30	80	2.6	4.0	77.3	36.80
CLSQ-2030-100P	20×30	100	2.9	4.0	97.3	46.00
CLSQ-2030-130P	20×30	130	3.2	4.0	127.3	59.80
CLSQ-2030-150P	20×30	150	3.3	4.0	147.3	69.00
CLSQ-2030-200P	20×30	200	3.5	4.0	197.3	92.00
CLSQ-2030-250P	20×30	250	3.6	4.0	247.3	115.00
CLSQ-2030-300P	20×30	300	3.6	4.0	297.3	138.00
CLSQ-2030-400P	20×30	400	3.7	4.0	397.3	184.00
CLSQ-2030-500P	20×30	500	3.7	4.0	497.3	230.00
CLSQ-2030-700P	20×30	700	3.8	4.0	697.3	322.00
CLSQ-2030-1000P	20×30	1000	3.8	4.0	997.3	460.00

Synthetic fused silica 20×40mm – 30×30mm

Part Number	A×B [mm]	Focal length f [mm]	Edge thickness te [mm]	Center thickness tc [mm]	Back focal length fb [mm]	Radius of curvature r [mm]
CLSQ-2040-25P	20×40	25	1.2	7.0	20.2	11.50
CLSQ-2040-30P	20×40	30	1.7	6.0	25.9	13.80
CLSQ-2040-40P	20×40	40	2.0	5.0	36.6	18.40
CLSQ-2040-50P	20×40	50	1.7	4.0	47.3	23.00
CLSQ-2040-60P	20×40	60	2.1	4.0	57.3	27.60
CLSQ-2040-70P	20×40	70	2.4	4.0	67.3	32.20
CLSQ-2040-80P	20×40	80	2.6	4.0	77.3	36.80
CLSQ-2040-100P	20×40	100	2.9	4.0	97.3	46.00
CLSQ-2040-130P	20×40	130	3.2	4.0	127.3	59.80
CLSQ-2040-150P	20×40	150	3.3	4.0	147.3	69.00
CLSQ-2040-200P	20×40	200	3.5	4.0	197.3	92.00
CLSQ-2040-250P	20×40	250	3.6	4.0	247.3	115.00
CLSQ-2040-300P	20×40	300	3.6	4.0	297.3	138.00
CLSQ-2040-400P	20×40	400	3.7	4.0	397.3	184.00
CLSQ-2040-500P	20×40	500	3.7	4.0	497.3	230.00
CLSQ-2040-700P	20×40	700	3.8	4.0	697.3	322.00
CLSQ-2040-1000P	20×40	1000	3.8	4.0	997.3	460.00
CLSQ-2050-100P	20×50	100	2.9	4.0	97.3	46.00
CLSQ-2050-130P	20×50	130	3.2	4.0	127.3	59.80
CLSQ-2050-150P	20×50	150	3.3	4.0	147.3	69.00
CLSQ-2050-200P	20×50	200	3.5	4.0	197.3	92.00
CLSQ-2050-250P	20×50	250	3.6	4.0	247.3	115.00
CLSQ-2050-300P	20×50	300	3.6	4.0	297.3	138.00
CLSQ-2050-400P	20×50	400	3.7	4.0	397.3	184.00
CLSQ-2050-500P	20×50	500	3.7	4.0	497.3	230.00
CLSQ-2050-700P	20×50	700	3.8	4.0	697.3	322.00
CLSQ-2050-1000P	20×50	1000	3.8	4.0	997.3	460.00
CLSQ-2070-25P	20×70	25	1.2	7.0	20.2	11.50
CLSQ-2070-30P	20×70	30	1.7	6.0	25.9	13.80
CLSQ-2070-40P	20×70	40	2.0	5.0	36.6	18.40
CLSQ-2070-50P	20×70	50	1.7	4.0	47.3	23.00
CLSQ-2070-60P	20×70	60	2.1	4.0	57.3	27.60
CLSQ-2070-70P	20×70	70	2.4	4.0	67.3	32.20
CLSQ-2070-80P	20×70	80	2.6	4.0	77.3	36.80
CLSQ-2070-100P	20×70	100	2.9	4.0	97.3	46.00
CLSQ-20100-130P	20×100	130	3.2	4.0	127.3	59.80
CLSQ-20100-150P	20×100	150	3.3	4.0	147.3	69.00
CLSQ-20100-200P	20×100	200	3.5	4.0	197.3	92.00
CLSQ-20100-250P	20×100	250	3.6	4.0	247.3	115.00
CLSQ-20100-300P	20×100	300	3.6	4.0	297.3	138.00
CLSQ-20100-400P	20×100	400	3.7	4.0	397.3	184.00
CLSQ-20100-500P	20×100	500	3.7	4.0	497.3	230.00
CLSQ-20100-700P	20×100	700	3.8	4.0	697.3	322.00
CLSQ-20100-1000P	20×100	1000	3.8	4.0	997.3	460.00
CLSQ-3030-50P	30×30	50	1.4	7.0	45.2	23.00
CLSQ-3030-60P	30×30	60	1.6	6.0	55.9	27.60
CLSQ-3030-70P	30×30	70	2.3	6.0	65.9	32.20
CLSQ-3030-80P	30×30	80	1.8	5.0	79.6	36.80
CLSQ-3030-100P	30×30	100	2.5	5.0	96.6	46.00
CLSQ-3030-130P	30×30	130	3.1	5.0	126.6	59.80
CLSQ-3030-150P	30×30	150	3.3	5.0	146.6	69.00
CLSQ-3030-200P	30×30	200	3.8	5.0	196.6	92.00
CLSQ-3030-250P	30×30	250	4.0	5.0	246.6	115.00
CLSQ-3030-300P	30×30	300	4.2	5.0	296.6	138.00
CLSQ-3030-400P	30×30	400	4.4	5.0	396.6	184.00
CLSQ-3030-500P	30×30	500	4.4	5.0	496.6	230.00
CLSQ-3030-700P	30×30	700	4.7	5.0	696.6	322.00
CLSQ-3030-1000P	30×30	1000	4.8	5.0	996.6	460.00

Cylindrical Plano Convex Lenses | CLB-P/CLSQ-P

Catalog Code W3067

Synthetic fused silica 30×40mm – 30×100mm

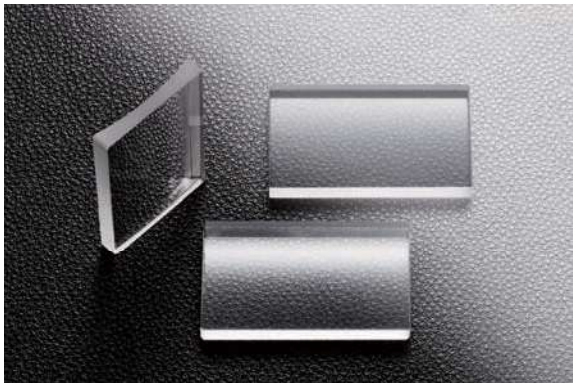
Part Number	A×B [mm]	Focal length f [mm]	Edge thickness te [mm]	Center thickness tc [mm]	Back focal length fb [mm]	Radius of curvature r [mm]
CLSQ-3040-50P	30×40	50	1.4	7.0	45.2	23.00
CLSQ-3040-60P	30×40	60	1.6	6.0	55.9	27.60
CLSQ-3040-70P	30×40	70	2.3	6.0	65.9	32.20
CLSQ-3040-80P	30×40	80	1.8	5.0	79.6	36.80
CLSQ-3040-100P	30×40	100	2.5	5.0	96.6	46.00
CLSQ-3040-130P	30×40	130	3.1	5.0	126.6	59.80
CLSQ-3040-150P	30×40	150	3.3	5.0	146.6	69.00
CLSQ-3040-200P	30×40	200	3.8	5.0	196.6	92.00
CLSQ-3040-250P	30×40	250	4.0	5.0	246.6	115.00
CLSQ-3040-300P	30×40	300	4.2	5.0	296.6	138.00
CLSQ-3040-400P	30×40	400	4.4	5.0	396.6	184.00
CLSQ-3040-500P	30×40	500	4.4	5.0	496.6	230.00
CLSQ-3040-700P	30×40	700	4.7	5.0	696.6	322.00
CLSQ-3040-1000P	30×40	1000	4.8	5.0	996.6	460.00
CLSQ-3050-50P	30×50	50	1.4	7.0	45.2	23.00
CLSQ-3050-60P	30×50	60	1.6	6.0	55.9	27.60
CLSQ-3050-70P	30×50	70	2.3	6.0	65.9	32.20
CLSQ-3050-80P	30×50	80	1.8	5.0	79.6	36.80
CLSQ-3050-100P	30×50	100	2.5	5.0	96.6	46.00
CLSQ-3050-130P	30×50	130	3.1	5.0	126.6	59.80
CLSQ-3050-150P	30×50	150	3.3	5.0	146.6	69.00
CLSQ-3050-200P	30×50	200	3.8	5.0	196.6	92.00
CLSQ-3050-250P	30×50	250	4.0	5.0	246.6	115.00
CLSQ-3050-300P	30×50	300	4.2	5.0	296.6	138.00
CLSQ-3050-400P	30×50	400	4.4	5.0	396.6	184.00
CLSQ-3050-500P	30×50	500	4.4	5.0	496.6	230.00
CLSQ-3050-700P	30×50	700	4.7	5.0	696.6	322.00
CLSQ-3050-1000P	30×50	1000	4.8	5.0	996.6	460.00
CLSQ-30100-130P	30×100	130	3.1	5.0	126.6	59.80
CLSQ-30100-150P	30×100	150	3.3	5.0	146.6	69.00
CLSQ-30100-200P	30×100	200	3.8	5.0	196.6	92.00
CLSQ-30100-250P	30×100	250	4.0	5.0	246.6	115.00
CLSQ-30100-300P	30×100	300	4.2	5.0	296.6	138.00
CLSQ-30100-400P	30×100	400	4.4	5.0	396.6	184.00
CLSQ-30100-500P	30×100	500	4.4	5.0	496.6	230.00
CLSQ-30100-700P	30×100	700	4.7	5.0	696.6	322.00
CLSQ-30100-1000P	30×100	1000	4.8	5.0	996.6	460.00

Cylindrical Plano Concave Lenses | CLB-N/CLSQ-N

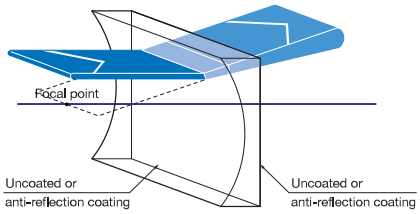
RoHS

Cylindrical plano-concave lens has a concave curvature in the vertical direction and has no curvature in the horizontal direction.
When used in combination with a plano-convex cylindrical lens an elliptical shaped beam can be sharped into a circular beam for use in semiconductor and other laser applications.

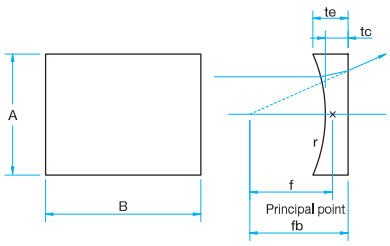
- Plano Concave Cylindrical lenses are available in BK7 for from visible range to infrared wavelength range and high-strength synthetic fused silica which has high laser damage threshold used in applications with 350nm ultraviolet light.
- BK7 lenses are also available with three types of anti-reflection coatings, visible wavelength range, in the near-infrared range and in the infrared range.
- Cylindrical lenses are often used in an optical system to change the shape and aspect ratio of the illumination light beam.



Schematic



Outline Drawing (in mm)



●Tolerance
Length A$^{+0}_{-0.1}$ B$^{+0}_{-0.1}$
Thickness tc±0.2

Specifications

Material	CLB: BK7 CLSQ: Synthetic fused silica
Design wavelength	546.1nm
Refractive index	BK: n_e=1.519 Synthetic fused silica: n_e=1.460
Coating	Uncoated: the end of the part number 'N' Anti-reflection coating: the end of the part number 'NM', 'NIR1', 'NIR2'
Laser Damage Threshold	Anti-reflection coating: 4J/cm^2 Laser pulse with 10ns, repetition frequency 20Hz
Clear aperture	90% of square or rectangle to actual dimension
Surface Quality (Scratch–Dig)	20–10

Guide

- ▶Lenses are available in a large selection and in custom sizes and focal lengths.
- ▶In addition to our standard coating we offer custom anti-reflective coating at specific wavelengths.
- ▶We offer holders to mount our catalog cylindrical lenses, consult our Sales Division for assistance in your selection (CHA).
  WEB Reference Catalog Code W4022

Attention

- ▶The cylindrical plano-concave lens has chromatic aberration, the focal length will vary depending on the wavelength. Please check the "wavelength characteristic of the focal length data" on the Web for the focal lengths of each wavelength. WEB Reference Catalog Code W3068
- ▶When using a plano-concave cylindrical lens parallel light should incident to the concave side first.There is a possibility that the spherical aberration will increase and optical performance of the system will be degrated if use in reverse.
- ▶Transmissions losses due to reflection off the front and rear surfaces of the lens can be minimized by coating the surfaces. Consult our Sales Division for anti-reflection coatings suitable for your application.

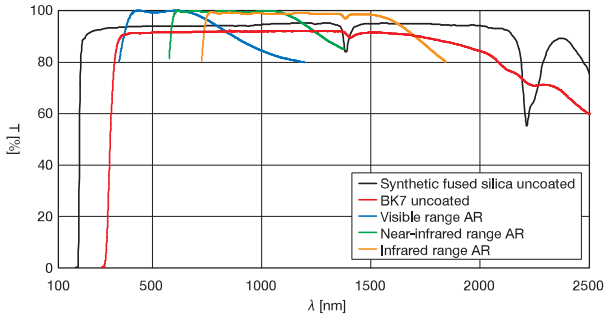
How to specify the anti-reflection coating

In case of specifying a anti-reflection coating 633nm – 1064nm to near infrared lens of CLB-3050-200N.
⇒ CLB-3050-200N**IR1**

Type of AR Coat	Part Number	Wavelength Range [nm]	Transmittance [%]
Visible range	CLB-3050-200NM	400 – 700	> Average 99
Near-infrared	CLB-3050-200NIR1	633 – 1064	> Average 98.5
Infrared	CLB-3050-200NIR2	750 – 1550	> Average 98.5

! Part of the above is an example of if you want to coat anti-reflective coating on the lens of the CLB-3050-200N.
! Anti-reflection coating can be available to the lens of all of CLB.

Typical Transmittance Data T: Transmission



Compatible Optic Mounts

CHA-25, -60

Cylindrical Plano Concave Lenses | CLB-N/CLSQ-N

Catalog Code W3068

BK7 10×10mm – 30×50mm

Uncoated	How to specify the anti-reflection coating			A×B [mm]	Focal length f [mm]	Edge thickness te [mm]	Center thickness tc [mm]	Back focal length fb [mm]	Radius of curvature r [mm]
Part Number	Visibe 400 – 700nm	Near-infrared 633 – 1064nm	Infrared 750 – 1550nm						
CLB-1010-15N	M	IR1	IR2	10×10	–15	4.0	2.2	–16.4	7.79
CLB-1010-20N	M	IR1	IR2	10×10	–20	3.0	1.7	–21.1	10.38
CLB-1010-25N	M	IR1	IR2	10×10	–25	3.0	2.0	–26.3	12.98
CLB-1010-30N	M	IR1	IR2	10×10	–30	3.0	2.2	–31.4	15.57
CLB-1010-40N	M	IR1	IR2	10×10	–40	3.0	2.4	–41.6	20.76
CLB-1020-15N	M	IR1	IR2	10×20	–15	4.0	2.2	–16.4	7.79
CLB-1020-20N	M	IR1	IR2	10×20	–20	3.0	1.7	–21.1	10.38
CLB-1020-25N	M	IR1	IR2	10×20	–25	3.0	2.0	–26.3	12.98
CLB-1020-30N	M	IR1	IR2	10×20	–30	3.0	2.2	–31.4	15.57
CLB-1020-40N	M	IR1	IR2	10×20	–40	3.0	2.4	–41.6	20.76
CLB-1515-20N	M	IR1	IR2	15×15	–20	5.0	1.8	–21.2	10.38
CLB-1515-25N	M	IR1	IR2	15×15	–25	5.0	2.6	–26.7	12.98
CLB-1515-30N	M	IR1	IR2	15×15	–30	4.0	2.1	–31.4	15.57
CLB-1515-40N	M	IR1	IR2	15×15	–40	4.0	2.6	–41.7	20.76
CLB-1525-20N	M	IR1	IR2	15×25	–20	5.0	1.8	–21.2	10.38
CLB-1525-25N	M	IR1	IR2	15×25	–25	5.0	2.6	–26.7	12.98
CLB-1525-30N	M	IR1	IR2	15×25	–30	4.0	2.1	–31.4	15.57
CLB-1525-40N	M	IR1	IR2	15×25	–40	4.0	2.6	–41.7	20.76
CLB-2020-25N	M	IR1	IR2	20×20	–25	7.0	2.3	–26.5	12.98
CLB-2020-30N	M	IR1	IR2	20×20	–30	6.0	2.4	–31.6	15.57
CLB-2020-40N	M	IR1	IR2	20×20	–40	5.0	2.4	–41.6	20.76
CLB-2020-50N	M	IR1	IR2	20×20	–50	4.0	2.0	–51.3	25.95
CLB-2020-60N	M	IR1	IR2	20×20	–60	4.0	2.4	–61.5	31.14
CLB-2020-70N	M	IR1	IR2	20×20	–70	4.0	2.6	–71.7	36.33
CLB-2020-80N	M	IR1	IR2	20×20	–80	4.0	2.8	–81.8	41.52
CLB-2020-100N	M	IR1	IR2	20×20	–100	4.0	3.0	–102.0	51.90
CLB-2020-130N	M	IR1	IR2	20×20	–130	4.0	3.3	–132.1	67.47
CLB-2020-150N	M	IR1	IR2	20×20	–150	4.0	3.4	–152.2	77.85
CLB-2020-200N	M	IR1	IR2	20×20	–200	4.0	3.5	–202.3	103.80
CLB-2020-250N	M	IR1	IR2	20×20	–250	4.0	3.6	–252.4	129.75
CLB-2020-300N	M	IR1	IR2	20×20	–300	4.0	3.7	–302.4	155.70
CLB-2030-100N	M	IR1	IR2	20×30	–100	4.0	3.0	–102.0	51.90
CLB-2030-130N	M	IR1	IR2	20×30	–130	4.0	3.3	–132.1	67.47
CLB-2030-150N	M	IR1	IR2	20×30	–150	4.0	3.4	–152.2	77.85
CLB-2030-200N	M	IR1	IR2	20×30	–200	4.0	3.5	–202.3	103.80
CLB-2030-250N	M	IR1	IR2	20×30	–250	4.0	3.6	–252.4	129.75
CLB-2030-300N	M	IR1	IR2	20×30	–300	4.0	3.7	–302.4	155.70
CLB-2040-25N	M	IR1	IR2	20×40	–25	7.0	2.3	–26.5	12.98
CLB-2040-30N	M	IR1	IR2	20×40	–30	6.0	2.4	–31.6	15.57
CLB-2040-40N	M	IR1	IR2	20×40	–40	5.0	2.4	–41.6	20.76
CLB-2040-50N	M	IR1	IR2	20×40	–50	4.0	2.0	–51.3	25.95
CLB-2040-60N	M	IR1	IR2	20×40	–60	4.0	2.4	–61.5	31.14
CLB-2040-70N	M	IR1	IR2	20×40	–70	4.0	2.6	–71.7	36.33
CLB-2040-80N	M	IR1	IR2	20×40	–80	4.0	2.8	–81.8	41.52
CLB-2050-100N	M	IR1	IR2	20×50	–100	4.0	3.0	–102.0	51.90
CLB-2050-130N	M	IR1	IR2	20×50	–130	4.0	3.3	–132.1	67.47
CLB-2050-150N	M	IR1	IR2	20×50	–150	4.0	3.4	–152.2	77.85
CLB-2050-200N	M	IR1	IR2	20×50	–200	4.0	3.5	–202.3	103.80
CLB-2050-250N	M	IR1	IR2	20×50	–250	4.0	3.6	–252.4	129.75
CLB-2050-300N	M	IR1	IR2	20×50	–300	4.0	3.7	–302.4	155.70
CLB-3030-50N	M	IR1	IR2	30×30	–50	7.0	2.2	–51.5	25.95
CLB-3030-60N	M	IR1	IR2	30×30	–60	6.0	2.1	–61.4	31.14
CLB-3030-70N	M	IR1	IR2	30×30	–70	5.0	1.8	–71.2	36.33
CLB-3030-80N	M	IR1	IR2	30×30	–80	5.0	2.2	–81.4	41.52
CLB-3030-100N	M	IR1	IR2	30×30	–100	5.0	2.8	–101.8	51.90
CLB-3030-130N	M	IR1	IR2	30×30	–130	5.0	3.3	–132.2	67.47
CLB-3030-150N	M	IR1	IR2	30×30	–150	5.0	3.5	–152.3	77.85
CLB-3030-200N	M	IR1	IR2	30×30	–200	5.0	3.9	–202.6	103.80
CLB-3030-250N	M	IR1	IR2	30×30	–250	5.0	4.1	–252.7	129.75
CLB-3030-300N	M	IR1	IR2	30×30	–300	5.0	4.3	–302.8	155.70
CLB-3040-50N	M	IR1	IR2	30×40	–50	7.0	2.2	–51.5	25.95
CLB-3040-60N	M	IR1	IR2	30×40	–60	6.0	2.1	–61.4	31.14
CLB-3040-70N	M	IR1	IR2	30×40	–70	5.0	1.8	–71.2	36.33
CLB-3040-80N	M	IR1	IR2	30×40	–80	5.0	2.2	–81.4	41.52
CLB-3050-100N	M	IR1	IR2	30×50	–100	5.0	2.8	–101.8	51.90
CLB-3050-130N	M	IR1	IR2	30×50	–130	5.0	3.3	–132.2	67.47
CLB-3050-150N	M	IR1	IR2	30×50	–150	5.0	3.5	–152.3	77.85
CLB-3050-200N	M	IR1	IR2	30×50	–200	5.0	3.9	–202.6	103.80
CLB-3050-250N	M	IR1	IR2	30×50	–250	5.0	4.1	–252.7	129.75
CLB-3050-300N	M	IR1	IR2	30×50	–300	5.0	4.3	–302.8	155.70

Synthetic fused silica 10×10mm – 30×50mm

Part Number	A×B [mm]	Focal length f [mm]	Edge thickness te [mm]	Center thickness tc [mm]	Back focal length fb [mm]	Radius of curvature r [mm]
CLSQ-1010-15N	10×10	–15	4.0	1.9	–16.3	6.90
CLSQ-1010-20N	10×10	–20	3.0	1.5	–21.0	9.20
CLSQ-1010-25N	10×10	–25	3.0	1.9	–26.3	11.50
CLSQ-1010-30N	10×10	–30	3.0	2.1	–31.4	13.80
CLSQ-1010-40N	10×10	–40	3.0	2.3	–41.6	18.40
CLSQ-1020-15N	10×20	–15	4.0	1.9	–16.3	6.90
CLSQ-1020-20N	10×20	–20	3.0	1.5	–21.0	9.20
CLSQ-1020-25N	10×20	–25	3.0	1.9	–26.3	11.50
CLSQ-1020-30N	10×20	–30	3.0	2.1	–31.4	13.80
CLSQ-1020-40N	10×20	–40	3.0	2.3	–41.6	18.40
CLSQ-1515-20N	15×15	–20	6.0	2.1	–21.5	9.20
CLSQ-1515-25N	15×15	–25	5.0	2.2	–26.5	11.50
CLSQ-1515-30N	15×15	–30	4.0	1.8	–31.2	13.80
CLSQ-1515-40N	15×15	–40	4.0	2.4	–41.6	18.40
CLSQ-1525-20N	15×25	–20	6.0	2.1	–21.5	9.20
CLSQ-1525-25N	15×25	–25	5.0	2.2	–26.5	11.50
CLSQ-1525-30N	15×25	–30	4.0	1.8	–31.2	13.80
CLSQ-1525-40N	15×25	–40	4.0	2.4	–41.6	18.40
CLSQ-2020-25N	20×20	–25	7.0	1.2	–25.8	11.50
CLSQ-2020-30N	20×20	–30	6.0	1.7	–31.2	13.80
CLSQ-2020-40N	20×20	–40	5.0	2.0	–41.4	18.40
CLSQ-2020-50N	20×20	–50	4.0	1.7	–51.2	23.00
CLSQ-2020-60N	20×20	–60	4.0	2.1	–61.5	27.60
CLSQ-2020-70N	20×20	–70	4.0	2.4	–71.6	32.20
CLSQ-2020-80N	20×20	–80	4.0	2.6	–81.8	36.80
CLSQ-2020-100N	20×20	–100	4.0	2.9	–102.0	46.00
CLSQ-2020-130N	20×20	–130	4.0	3.2	–132.2	59.80
CLSQ-2020-150N	20×20	–150	4.0	3.3	–152.2	69.00
CLSQ-2020-200N	20×20	–200	4.0	3.5	–202.4	92.00
CLSQ-2020-250N	20×20	–250	4.0	3.6	–252.4	115.00
CLSQ-2020-300N	20×20	–300	4.0	3.6	–302.5	138.00
CLSQ-2040-25N	20×40	–25	7.0	1.2	–25.8	11.50
CLSQ-2040-30N	20×40	–30	6.0	1.7	–31.2	13.80
CLSQ-2040-40N	20×40	–40	5.0	2.0	–41.4	18.40
CLSQ-2040-50N	20×40	–50	4.0	1.7	–51.2	23.00
CLSQ-2040-60N	20×40	–60	4.0	2.1	–61.5	27.60
CLSQ-2040-70N	20×40	–70	4.0	2.4	–71.6	32.20
CLSQ-2040-80N	20×40	–80	4.0	2.6	–81.8	36.80
CLSQ-2050-100N	20×50	–100	4.0	2.9	–102.0	46.00
CLSQ-2050-130N	20×50	–130	4.0	3.2	–132.2	59.80
CLSQ-2050-150N	20×50	–150	4.0	3.3	–152.2	69.00
CLSQ-2050-200N	20×50	–200	4.0	3.5	–202.4	92.00
CLSQ-2050-250N	20×50	–250	4.0	3.6	–252.4	115.00
CLSQ-2050-300N	20×50	–300	4.0	3.6	–302.5	138.00
CLSQ-3030-50N	30×30	–50	7.0	1.4	–51.0	23.00
CLSQ-3030-60N	30×30	–60	6.0	1.6	–61.1	27.60
CLSQ-3030-70N	30×30	–70	6.0	2.3	–71.6	32.20
CLSQ-3030-80N	30×30	–80	5.0	1.8	–81.2	36.80
CLSQ-3030-100N	30×30	–100	5.0	2.5	–101.7	46.00
CLSQ-3030-130N	30×30	–130	5.0	3.1	–132.1	59.80
CLSQ-3030-150N	30×30	–150	5.0	3.3	–152.3	69.00
CLSQ-3030-200N	30×30	–200	5.0	3.8	–202.6	92.00
CLSQ-3030-250N	30×30	–250	5.0	4.0	–252.8	115.00
CLSQ-3030-300N	30×30	–300	5.0	4.2	–302.9	138.00
CLSQ-3040-50N	30×40	–50	7.0	1.4	–51.0	23.00
CLSQ-3040-60N	30×40	–60	6.0	1.6	–61.1	27.60
CLSQ-3040-70N	30×40	–70	6.0	2.3	–71.6	32.20
CLSQ-3040-80N	30×40	–80	5.0	1.8	–81.2	36.80
CLSQ-3050-100N	30×50	–100	5.0	2.5	–101.7	46.00
CLSQ-3050-130N	30×50	–130	5.0	3.1	–132.1	59.80
CLSQ-3050-150N	30×50	–150	5.0	3.3	–152.3	69.00
CLSQ-3050-200N	30×50	–200	5.0	3.8	–202.6	92.00
CLSQ-3050-250N	30×50	–250	5.0	4.0	–252.8	115.00
CLSQ-3050-300N	30×50	–300	5.0	4.2	–302.9	138.00

Contact sheet

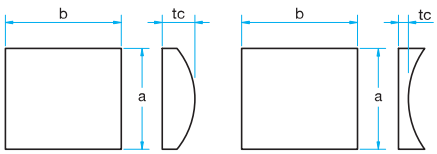
Catalog Code W3806

Contact sheet for Special Order for Cylindrical Lens ☐Estimation ☐Order

Date

☐ To: Sigma Koki Co., Ltd. **FAX +81-3-5638-6550**

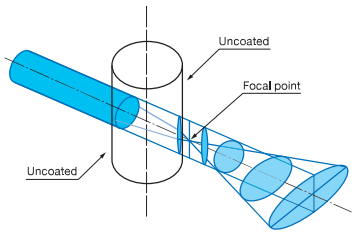
Affiliation (Organization Name)					
Department					
TEL		FAX		E-mail	
Country/Address					
Name & Designation					(Tentative name is okay)
Drawing Number			Estimate	☐ Yes: by Date	☐ No
Desired Delivery Date			Budget		JP Yen

Specification of lens	Quantity			
	Selected from standard product	Part Number		If you are using a Spherical lens of standard product, please fill in the product number.
	Custom-made	Type	☐ Plano-convex ☐ Plano-concave	
		Material	☐ BK7 ☐ Synthetic fused silica ☐ Synthetic fused silica for Excimer Laser (λ=) ☐ Other ( )	
		Focal length	f = mm	●When there is no specification of the design wavelength, 546.1nm and standard products. ●May want to change the center thickness by the case of the production. ●If you do not specify the dimension tolerance, we will apply our standard tolerance instead.
		Design wavelength	λ = nm	
		Diameter		a mm b mm tc mm
Specifications of Coating	With or without coating		☐ Non ☐ Single-layer anti-reflection coating ☐ Broadband multi-layer anti-reflection coating ☐ Other ( )	
	Wavelength Used		λ = nm	Type of AR (If required)
Other	* Write more detailed specifications here. (Rough illustration is acceptable.)			

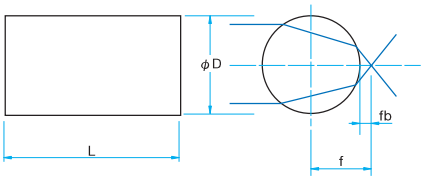
Rod Lenses are cylindrical lenses with polished on its circumference surface.
These are used in several applications including laser focusing beam into a line, changing beam shape into sheet-shape or irradiating at a distance with elongated line.

- Focal length shortened by reducing the rod lense diameter compared to cylindrical lenses.
- Precise processing and polishing yields distortion-free, flex free straight line gain when projection is made from a distance.
- Suitable for collecting large amount of light when installed it in front of a line sensor.

Schematic



Outline Drawing (in mm)



●Tolerance
Diameter $\phi D^{+0}_{-0.05}$
Length L ±0.1

Specifications

Material	BK7
Design wavelength	546.1nm
Polish	Rod circumference surface polished
Coating	Uncoated
Surface Quality (Scratch–Dig)	40–20

Guide

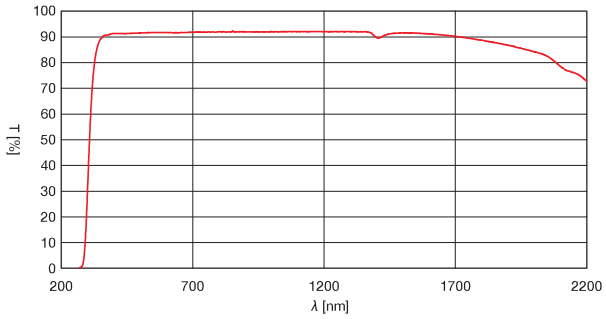
- ▶Please contact our Sales Division for rod lens with AR coating requirements.
- ▶Contact our Sales Division for customized products. (customized on outer diameter, length, etc.)
- ▶Use MLH-10 (Small Lens Claw) or MLH-SF (Selfoc® Lens Claws) to hold cylindrical lens.
  WEB Reference Catalog Code W4021, WEB Reference Catalog Code W4051

Attention

- ▶Align the beam on the circumference sufrace for proper use.
- ▶Notable spherical aberration may occur due to the small curvature of rod lenses it is recommended that you use cylindrical lenses for precise optical systems. Reference B140
- ▶When diverging laser beam through rod lenses, operators' eyes may be exposed to diverged beam. Make sure to check the power of laser and to apply safety goggles before using rod lenses.
- ▶Rod lenses are not chamfered use caution when handling the product.

BK7(Uncoated) Typical Transmittance Data

T: Transmission



Specifications

Part Number	Diameter φD [mm]	Length L [mm]	Focal length f [mm]	Back focal length fb [mm]
RODB-03L06	φ3	6	2.2	0.7
RODB-03L08	φ3	8	2.2	0.7
RODB-03L10	φ3	10	2.2	0.7
RODB-04L06	φ4	6	2.9	0.9
RODB-04L08	φ4	8	2.9	0.9
RODB-04L10	φ4	10	2.9	0.9
RODB-05L06	φ5	6	3.7	1.2
RODB-05L08	φ5	8	3.7	1.2
RODB-05L10	φ5	10	3.7	1.2

Compatible Optic Mounts

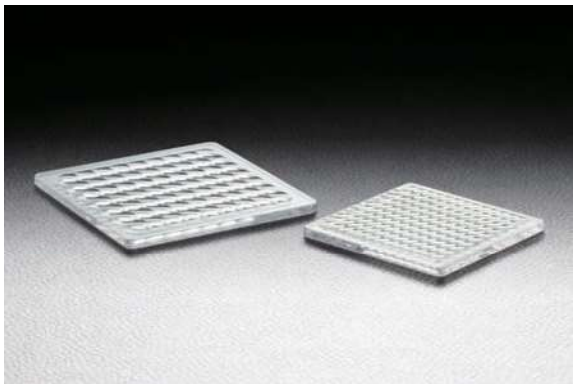
MLH-10 / MLH-SF + MLH-10ADP-2 + FOP-1

Fly-Eye Lens | FEL

RoHS Catalog Code W3183

Fly-Eye Lens is used when making illumination light of homogeneous brightness for projector and semiconductor manufacturing equipment. If used in fly-eye lenses of 2 pieces in pair, even strong diffusing light such as a lamp, it can be a light of rectangular intensity distribution.

- Two types are available for focal length of 42.07mm with partitions of 7 × 9 and 38.24mm with partition of 10 × 13.
- With an anti-reflection coating, the incident light can be almost used as illumination light without loss of light.
- By using press molding technology to make the glass lens we have achieved both high performance and low cost.



Specifications

Material	B270® or equivalent
Coating	Anti-reflection coating (dielectric multilayer coating)
Design Wavelength	400 – 700nm
Incident Angle	0° (Coating specification)
Focal Length Tolerance	±3%
Optical Axis Center Position Tolerance	±1.5mm

* B270® is a registered trademark of SCHOTT AG.

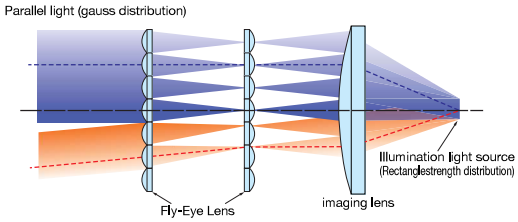
Guide

- ▶We can provide a custom lens array suitable for your application. Please contact our Sales Division with your request and supply the number of divisions, the focal length, the size and the wavelength.
- ▶We can also produce the optical systems using fly lens array.

Attention

- ▶Imaging lens is not included in the specification. In addition, fly-eye lens array is sold one by one.
- ▶When used in a laser with high coherence, noise may be generated in the intensity distribution due to the diffraction by the border line of the lens.

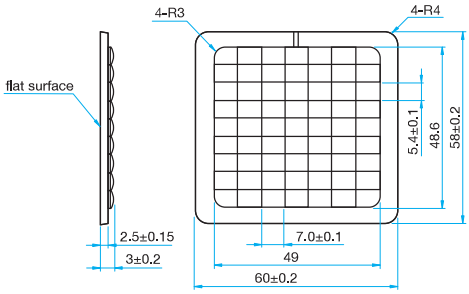
Schematic



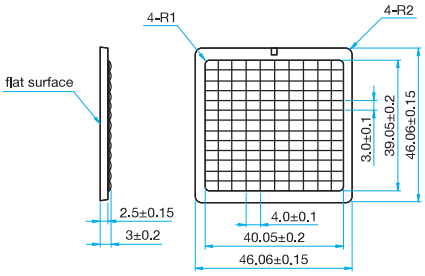
Outline Drawing

(in mm)

FEL-5860R03-42.07PM



FEL-46S03-38.24PM



Specifications

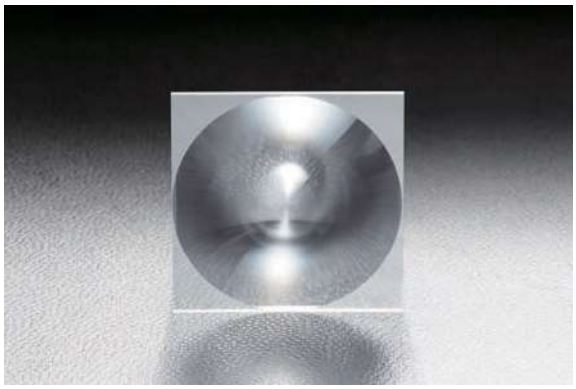
Part Number	Focal length [mm]	Radius of Curvature [mm]
FEL-5860R03-42.07PM	42.07	22.0
FEL-46S03-38.24PM	38.24	20.0

Fresnel Lens | FRL

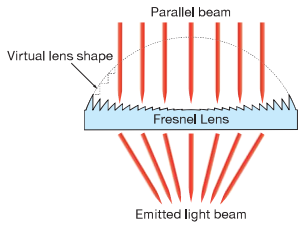
RoHS Catalog Code W3184

The lens of short focal length, which is thicker, has been made to a step structure and to a thin plate shape with the characteristics of the lens.
It can be used as a substitute for the lens for a loupe and LED light.

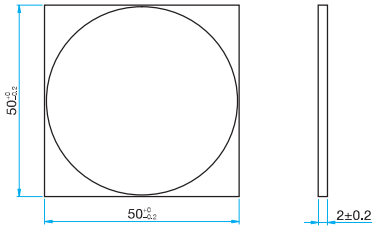
- Since it is processed directly on the acrylic plate of 2mm thickness, it is difficult to be deformed and the performance is stable.
- There are four focal lengths offered from 5mm to 20mm.
- Compared with the lens of the same focal length, it is lighter and lens will not protrude from the edge of holder.



Schematic



Outline Drawing (in mm)



Specifications

Material	Acrylic CLAREX
Refractive Index	n=1.49
Focal Length Tolerance	±10% of focal length (in a clear aperture)

* CLAREX is a registered trademark of Nitto Jushi Kogyo Co., Ltd..

Guide

- This product is available with different focal lengths and sizes that are not listed on-line or in our catalog. Please contact our Sales Team with your requests.

Attention

- There is a direction to the Fresnel lens. Surface that is processed is equivalent to convex.
- When used in laser, since diffracted light is generated in the step structure, some of the light will also leaked around the focused spot .
- Characteristics as the lens is obtained in the range of ϕ50mm, but it is not guaranteed the accuracy of the focal length out of the scope of the clear aperture.
- When rubbing strongly the processed surface of the fresnel lens, performance may be degraded. Please do not touch directly the surface.
- When exposed to high temperature of 80°C or more, it may be deformed and performance can be severely degraded.
- Please do not use organic solvents such as acetone and chloroform which will dissolved and damage the step structure.
- At the time of delivery, it is delivered with a protection sheet affixed to the surface. Please remove this protective sheet before using.

Specifications

Part Number	Focal length [mm]	Prism pitch [mm]	Clear Aperture [mm]
FRL-50S-05P	5	0.05	ϕ10
FRL-50S-10P	10	0.05	ϕ20
FRL-50S-15P	15	0.05	ϕ30
FRL-50S-20P	20	0.08	ϕ40

Micro Spheres | MS

RoHS

Micro Spheres are mostly used for coupling optical fibers to laser diodes and other fibers or detectors.

- Since these ball lenses are much smaller they are suitable for applications requiring reduction in size and weight. The lens circumference are completely polished and should be handled carefully to avoid damage
- Both AR coated and uncoated are available. Single layer MgF_2 is available in 3 variations of bandwidths 400 – 700nm, 700 – 900nm and 1300 – 1550nm.
- Design wavelength of the focal lengths is 587.6nm (yellow helium line [d])

Specifications

Material	LaSF9
Coating	Uncoated: MS-P Anti-reflection coating: MS-P1, -P2, -P3
Clear aperture	80% of actual aperture
Surface Quality (Scratch–Dig)	40–20

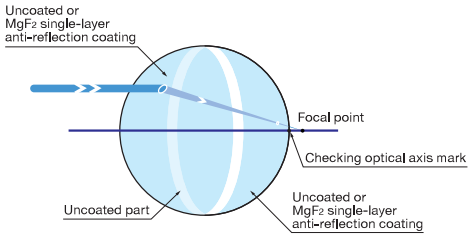
Guide

- ▶Please contact our Sales Division for micro lenses with AR coatings.
- ▶Contact our Sales Division for customized products. (customized on outer diameter,etc.)

Attention

- ▶Small ball lenses with anti-reflective coating are marked at its optical axis to identify the direction of coating. After installation of a small spherical lens, clean the ball lens by wiping with alcohol and check marks on the optical axis.
- ▶Small ball lens have a short focal length, so it is possible to focus the beam at a very large angle. However, since spherical aberration is large, the focused spot size will not be small.

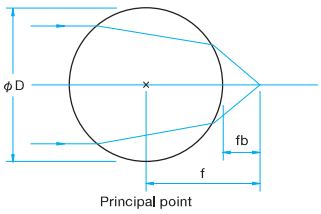
Schematic



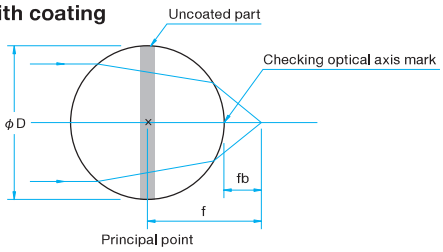
Outline Drawing

(in mm)

Uncoated



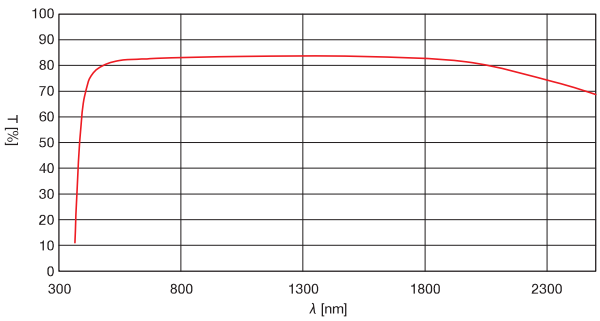
With coating



●Tolerance
Diameter φD±0.001

LaSF9 (Uncoated) Typical Transmittance Data

T: Transmission



Uncoated

Part Number	Wavelength Range [nm]	Diameter ϕD [mm]	f (588nm) [mm]	fb (588nm) [mm]
MS-01-0.54P	400 – 2000	ϕ1	0.54	0.04
MS-02-1.1P	400 – 2000	ϕ2	1.09	0.09
MS-03-1.7P	400 – 2000	ϕ3	1.63	0.13
MS-05-2.8P	400 – 2000	ϕ5	2.72	0.22
MS-08-4.35P	400 – 2000	ϕ8	4.35	0.35

632.8nm with AR coating

Part Number	Wavelength Range [nm]	Diameter ϕD [mm]	f (633nm) [mm]	fb (633nm) [mm]
MS-01-0.54P1	400 – 700	ϕ1	0.55	0.05
MS-02-1.1P1	400 – 700	ϕ2	1.09	0.09
MS-03-1.7P1	400 – 700	ϕ3	1.64	0.14
MS-05-2.8P1	400 – 700	ϕ5	2.73	0.23
MS-08-4.35P1	400 – 700	ϕ8	4.37	0.37

830nm with AR coating

Part Number	Wavelength Range [nm]	Diameter ϕD [mm]	f (830nm) [mm]	fb (830nm) [mm]
MS-01-0.54P2	700 – 900	ϕ1	0.55	0.05
MS-02-1.1P2	700 – 900	ϕ2	1.10	0.10
MS-03-1.7P2	700 – 900	ϕ3	1.65	0.15
MS-05-2.8P2	700 – 900	ϕ5	2.75	0.25
MS-08-4.35P2	700 – 900	ϕ8	4.41	0.41

1300nm with AR coating

Part Number	Wavelength Range [nm]	Diameter ϕD [mm]	f (1300nm) [mm]	fb (1300nm) [mm]
MS-01-0.54P3	1300 – 1550	ϕ1	0.56	0.06
MS-02-1.1P3	1300 – 1550	ϕ2	1.11	0.11
MS-03-1.7P3	1300 – 1550	ϕ3	1.67	0.17
MS-05-2.8P3	1300 – 1550	ϕ5	2.78	0.28
MS-08-4.35P3	1300 – 1550	ϕ8	4.45	0.45

Table of Focal Length Sifts According to Wavelength

Wavelength Range [nm]	LaSF9 Refractive index	Diameter ϕD [mm]									
		ϕ1		ϕ2		ϕ3		ϕ5		ϕ8	
		Focal length f [mm]	Back focal length fb [mm]	Focal length f [mm]	Back focal length fb [mm]	Focal length f [mm]	Back focal length fb [mm]	Focal length f [mm]	Back focal length fb [mm]	Focal length f [mm]	Back focal length fb [mm]
404.7	1.8984	0.53	0.03	1.06	0.06	1.58	0.08	2.64	0.14	4.23	0.23
435.8	1.8847	0.53	0.03	1.07	0.07	1.60	0.10	2.66	0.16	4.26	0.26
480	1.8706	0.54	0.04	1.07	0.07	1.61	0.11	2.69	0.19	4.30	0.30
546.1	1.8565	0.54	0.04	1.08	0.08	1.63	0.13	2.71	0.21	4.34	0.34
587.6	1.8503	0.54	0.04	1.09	0.09	1.63	0.13	2.72	0.22	4.35	0.35
632.8	1.8449	0.55	0.05	1.09	0.09	1.64	0.14	2.73	0.23	4.37	0.37
706.5	1.8383	0.55	0.05	1.10	0.10	1.64	0.14	2.74	0.24	4.39	0.39
830	1.8310	0.55	0.05	1.10	0.10	1.65	0.15	2.75	0.25	4.41	0.41
852.1	1.8300	0.55	0.05	1.10	0.10	1.65	0.15	2.76	0.26	4.41	0.41
1060	1.8229	0.55	0.05	1.11	0.11	1.66	0.16	2.77	0.27	4.43	0.43
1300	1.8176	0.56	0.06	1.11	0.11	1.67	0.17	2.78	0.28	4.45	0.45
1529.6	1.8136	0.56	0.06	1.11	0.11	1.67	0.17	2.79	0.29	4.46	0.46

Micro Lenses | SLM

RoHS

Micro lenses are spherical plano convex/biconvex lenses with diameters smaller than 4mm. These small lenses are designed for use in equipment and instruments that demand lighter and smaller footprint optics.

- Spherical plano convex lenses are useful when parallel beams are converged or lights from sources are converted to parallel beams, i.e., at infinite conjugate ratios.
- Spherical biconvex lenses are useful when lights from sources are converged or images are relayed to other optical systems, i.e., at unit conjugate ratios.
- Since these lenses are designed at the wavelength 587.6nm (yellow helium line [d]), the focal lengths of them vary at other wavelengths.

Specifications

Material	LaSF9, SK2, BK7
Design wavelength	587.6nm
Coating	Uncoated
Centration	<3′
Surface Quality (Scratch–Dig)	40–20

Guide

▶In addition to our standard products listed on-line and in the catalog, custom products are available. Please contact our Sales Division for assistance with your request.

Attention

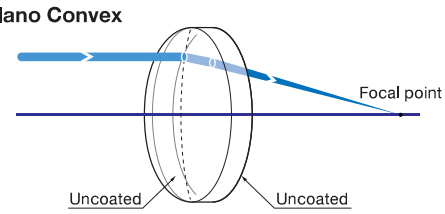
▶The micro lenses have spherical aberration and the focal length will vary depending on the wavelength. Please check the "wavelength characteristic of the focal length data" on the Web for the focal lengths of each wavelength. ▶WEB Reference Catalog Code W3072

▶The plano convex lenses are designed for parallel light to be incident to the convex surface. Using the lens in reverse may increase the spherical aberration and the focused spot may enlarge and the image will appear out of focus.

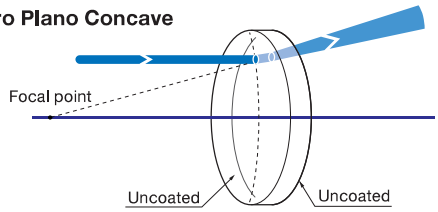
▶Transmissions losses due to reflection off the front and rear surfaces of the lens can be minimized by coating the surfaces. Consult our SalesDivision for anti-reflection coatings suitable for your application.

Schematic

Micro Plano Convex

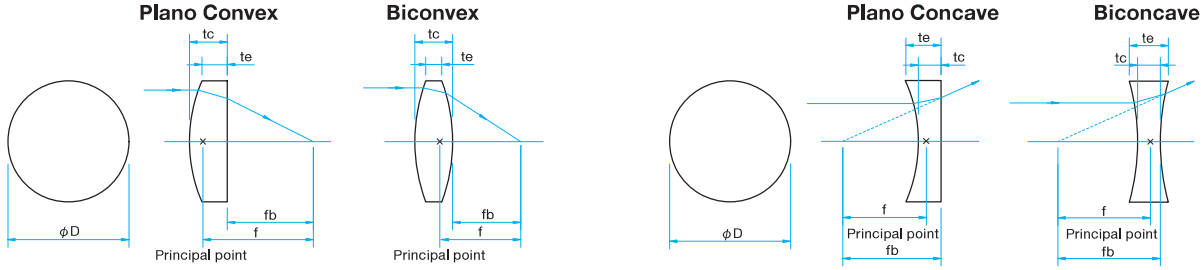


Micro Plano Concave



Outline Drawing

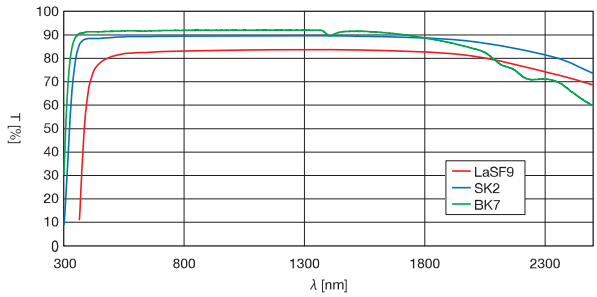
(in mm)



●Tolerance
Diameter $\phi D^{0}_{-0.2}$ Thickness tc ±0.2 Focal length ±5%

Typical Transmittance Data

T: Transmission



Plano Convex

Part Number	Diameter φD [mm]	Focal length f [mm]	Back focal length fb [mm]	Edge thickness te [mm]	Center thickness tc [mm]	Material	Radius of curvature r [mm]
SLM-1.5-01P	φ1.5	1.0	0.56	0.35	0.8	LaSF9	0.85
SLM-1.5-1.5P	φ1.5	1.5	0.44	1.65	1.9	LaSF9	1.25
SLM-02-1.5P	φ2	1.5	0.5	1.4	1.9	LaSF9	1.28
SLM-02-02P	φ2	2.0	1.2	1.2	1.5	LaSF9	1.70
SLM-02-2.5P	φ2	2.5	1.6	1.3	1.6	LaSF9	2.13
SLM-02-03P	φ2	3.0	2.2	1.0	1.3	LaSF9	2.55
SLM-03-2.5P	φ3	2.5	1.4	1.5	2.1	LaSF9	2.13
SLM-03-03P	φ3	3.0	1.9	1.5	2.0	LaSF9	2.55
SLM-03-04P	φ3	4.0	3.3	1.0	1.3	LaSF9	3.40
SLM-03-06P	φ3	6.0	5.1	1.1	1.4	SK2	3.64
SLM-04-04P	φ4	4.0	2.5	1.5	2.5	SK2	2.43
SLM-04-06P	φ4	6.0	5.0	0.7	1.3	SK2	3.64
SLM-04-08P	φ4	8.0	7.1	1.1	1.5	SK2	4.86
SLM-04-10P	φ4	10.0	9.1	1.2	1.5	SK2	6.07

Biconvex

Part Number	Diameter φD [mm]	Focal length f [mm]	Back focal length fb [mm]	Edge thickness te [mm]	Center thickness tc [mm]	Material	Radius of curvature r [mm]
SLM-03B-03P	φ3	3	2.4	1.1	1.8	SK2	3.26
SLM-03B-04P	φ3	4	3.4	1.2	1.8	BK7	3.80
SLM-03B-06P	φ3	6	5.5	1.1	1.5	BK7	5.93
SLM-04B-04P	φ4	4	3.2	1.2	2.2	SK2	4.40
SLM-04B-06P	φ4	6	5.4	1.2	1.9	BK7	5.86
SLM-04B-08P	φ4	8	7.4	1.2	1.7	BK7	7.97

Plano Concave

Part Number	Diameter φD [mm]	Focal length f [mm]	Back focal length fb [mm]	Edge thickness te [mm]	Center thickness tc [mm]	Material	Radius of curvature r [mm]
SLM-02-04N	φ2	–4	–4.40	0.95	0.8	LaSF9	–3.40
SLM-03-06N	φ3	–6	–6.39	1.03	0.8	LaSF9	–5.10
SLM-04-08N	φ4	–8	–8.37	1.10	0.8	LaSF9	–6.80

Biconcave

Part Number	Diameter φD [mm]	Focal length f [mm]	Back focal length fb [mm]	Edge thickness te [mm]	Center thickness tc [mm]	Material	Radius of curvature r [mm]
SLM-02B-02N	φ2	–2	–2.13	0.99	0.7	LaSF9	–3.50
SLM-04B-04N	φ4	–4	–4.16	1.39	0.8	LaSF9	–6.94

Compatible Optic Mounts

MLH-10, -15

Aspheric Plano Convex Lens | AGL-15/AGL-20

RoHS Catalog Code W3187

The aspheric shape allows the lens to achieve a shorter focus with smaller spherical aberration than provided by a simular convex surface of a plano convex lens. the lens is used for squeezing small illumination light or condensing efficiently the light emanating from a single point.

- Aspheric lenses can be used in a wide range from the visible to infrared of 1.5μm wavelength.
- There are two types of AGL-31.7P with a reduced spherical aberration by the plano convex lens of BK7 and AGL-12P with high NA using (FDS-90) high refractive index glass (FDS90).
- An aspheric shape can be produced by using a special polishing equipment. Polished Aspheric lenses do not have shrinkage, cracking and chipping which usually appear in molded aspheric lenses.

Specifications

Material	BK7, FDS90
Design Wavelength	587nm
Coating	Uncoated
Shape	Aspheric Plano Convex Polished Both Surfaces
Centration	<5′
Surface Quality (Scratch–Dig)	60–40

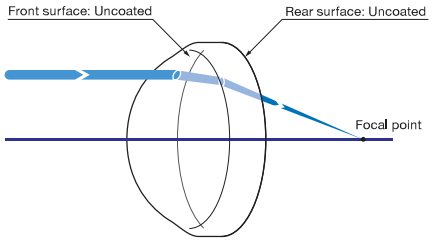
Guide

▶Please contact our Sales Division for Aspheric Condenser Lenses with anti-reflection coating.

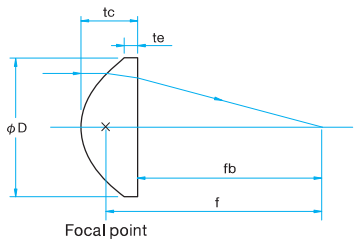
Attention

▶When the parallel light is incident from the back surface (flat), spherical aberration will not condense into a large point.
▶Since an aspheric plano convex lens is a single lens, the focal length will change depending on the wavelength.
▶Transmissions losses due to reflection off the front and rear surfaces of the lens can be minimized by coating the surfaces. Consult our Sales Division for anti-reflection coatings suitable for your application.

Schematic

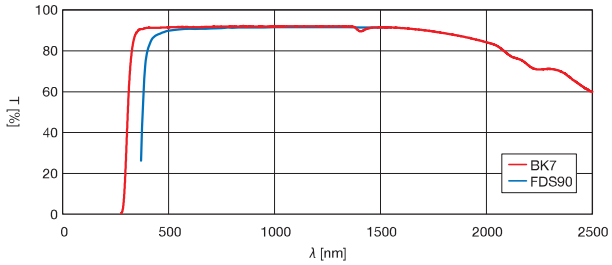


Outline Drawing (in mm)



●Tolerance
Diameter $\phi D^{0}_{-0.2}$
Thickness tc±0.2
Focal length ±7%

Typical Transmittance Data T: Transmission



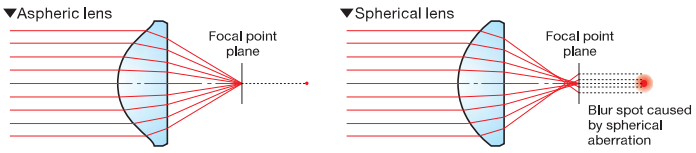
Specifications

Part Number	Diameter φD [mm]	Focal length f [mm]	Back focal length fb [mm]	NA* (D/2×0.8/f)	Edge thickness te [mm]	Center thickness tc [mm]	Material
AGL-15-12P	φ15	12	6	0.50	8.1	11	FDS90
AGL-15-31.7P	φ15	31.7	28.7	0.19	2.7	4.5	BK7
AGL-20-12P	φ20	12	6	0.67	5.6	11	FDS90
AGL-20-31.7P	φ20	31.7	27.7	0.25	2.8	6	BK7

* NA is calculated using 80% of the outer diameter of the lens.

■Aspheric and Spherical Lenses

When collecting a lot of light in a lens, it is required the lens which is short focal length and large diameter. However, when input the parallel light to the spherical lens of such conditions, there is the difference between the focal points of the rays passing through the vicinity of and periphery of the optical axis. This phenomenon is called the spherical aberration of the lens. In case of spherical lens, generally since the exceeding refraction occurs at the periphery area, it causes to be focused in closer point to the lens than the laght beam of the vicinity of the optical axis. Therefore, if the lens shape is designed such as more gentle curvature of the lens away from the center of optical axis, all parallel light incident on the lens will be focused at one point.

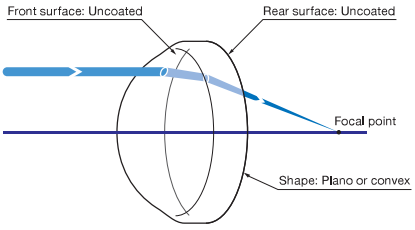


Aspheric Condenser Lenses | AGL

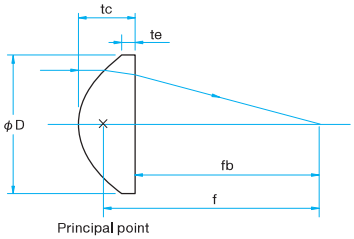
Aspheric condenser lens is a single lens for collection and condensing, which the radius of curvature of one side is changed according to the height from the optical axis to minimize spherical aberration. The other side is plano or convex.

- These lenses can condense light at a short focal length superior to what can be achieved with spherical lenses.
- Since these lenses are molded polished from B270-Superwhite, complex shapes that cannot be polished can be easily manufactured.
- These lenses are designed for the use at infinite conjugate ratios and focal lengths are designed at 587.6nm (yellow helium line [d]).

Schematic



Outline Drawing (in mm)



●Tolerance
Diameter φD±0.5
Thickness tc±0.5
Focal length ±7%

Specifications

Material	B270® (n_d=1.523)
Shape	Front surface: Aspherical Rear surface: Plano or Convex
Coating	Uncoated
Maximum operating temperature	170°C
Surface Quality (Scratch–Dig)	80–50

Guide

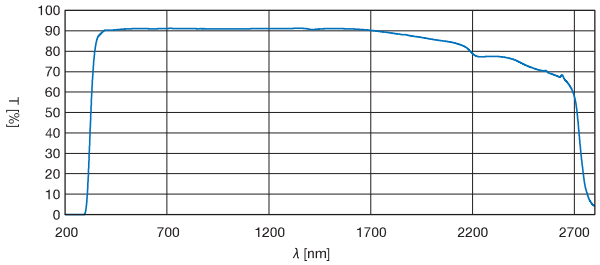
- ▶Please contact our Sales Division for Aspheric Condenser Lenses with anti-reflection coating.
- ▶B270® is a registered trademark of SCHOTT AG Inc.

Attention

- ▶When the parallel light is incident from the rear (side of plane or large spherical curvature), spherical aberration will not condense into a large point.
- ▶Aspheric condenser lens is used as an illumination light source. It is not aberration-free for laser focusing.
- ▶Transmissions losses due to reflection off the front and rear surfaces of the lens can be minimized by coating the surfaces. Consult our Sales Division for anti-reflection coatings suitable for your application.

Typical Transmittance Data

T: Transmission



Specifications

Part Number	Diameter φD [mm]	Focal length*2 f [mm]	Back focal length*2 fb [mm]	NA*1 (D/2×0.8/f)	Thickness of the edge te [mm]	Thickness of the center*2 tc [mm]	Rear surface
AGL-12-8.5P	φ12	8.5	5.8	0.56	1.6	5.5	Convex
AGL-12-10.5P	φ12	10.5	8.2	0.46	1.1	3.5	Plano
AGL-18-12P	φ18	12	6.9	0.60	3.3	8.8	Convex
AGL-18-15.5P	φ18	15.5	10.8	0.46	3.0	7.0	Plano
AGL-19-17P	φ19	17	12.4	0.45	1.8	7.0	Plano
AGL-24-18P	φ24	18	11.4	0.53	2.0	10.0	Plano
AGL-25-20P	φ25	20	15.1	0.50	1.2	7.5	Plano
AGL-30-23.5P	φ30	23.5	14.3	0.51	3.8	14.0	Plano
AGL-30-26.5P	φ30	26.5	19.3	0.45	3.0	11.0	Plano
AGL-32.5-23.5P	φ32.5	23.5	15.1	0.55	2.5	14.0	Convex
AGL-38-34.5P	φ38	34.5	26.6	0.44	1.5	12.0	Plano
AGL-50-39P	φ50	39	25.5	0.51	2.8	20.5	Plano
AGL-50-50P	φ50	50	40.6	0.40	2.5	14.4	Convex

*1 NA is calculated using 80% of the outer diameter of the lens.
*2 Since this is a molding lens, therefore , it typically only can be used for illumination purpose.

Compatible Optic Mounts

LHF-20S, -25S, -30S, -50S / LHA-25, 60 / SLH-25, -50 / MLH-15

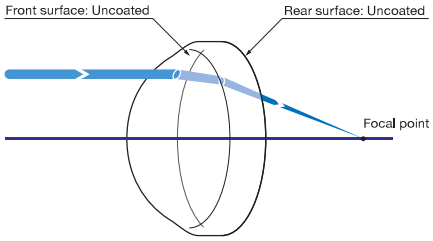
High Precision Polished Aspheric Lenses | AGL-E/AGL-G

RoHS

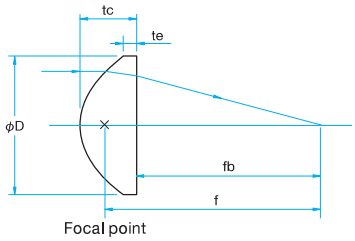
These precision polished aspheric lenses can condense the collimated light into the range of diffraction limited.
These lenses are ideally suited for collimating the LD emitted light or focusing the collimated light into the optical fiber.

- High numerical apertures for effective light condensing.
- Surface irregularity of convex surface is less than 0.1μm for AGL-EA/AGL-GA series and less than 0.5μm for AGL-EB/AGL-GB series.

Schematic



Outline Drawing (in mm)



●Tolerance
Diameter $\phi D^{+0}_{-0.1}$
Thickness tc±0.1
Focal length ±1%

Specifications

Material	S-LAH64
Refractive Index	1.792 (546.1nm), 1.777 (780nm)
Abbe number νd	47.37
Rear surface form	Plano
Centration	< 3′
Coating	Uncoated
Clear aperture	90% of diameter
Surface Quality (Scratch-Dig)	60-40

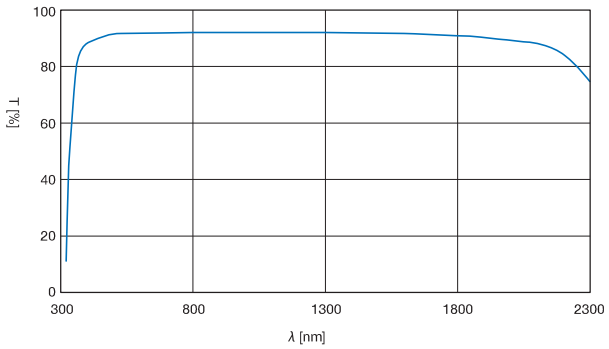
Guide

- ▶High precision polished aspheric lens with anti-reflection coating on are available upon request.
- ▶To mount the high precision polished aspheric lenses, fixed lens holders (LHF-S, LHA) are available.
  WEB Reference Catalog Code W4015, WEB Reference Catalog Code W4020
- ▶Contact our Sales Division with your request for custom focal length, diameter and NA not listed on our website or in the catalog.

Attention

- ▶There is a direction to put a light in the High precision polished aspheric lens. Please make sure to put the incident parallel light from the convex side.
- ▶If it reversed, the spherical aberration is deteriorated and the focused spot becomes large.
- ▶If the light other than the design wavelength is focused, the focal spot may not reach a diffraction limit due to a residual aberration.
- ▶Since a high precision polished aspheric lens is not chromatically corrected, the focal length (back focal length) will change depending on the wavelength.
- ▶Since there is no anti-reflection coating on the lens, by the reflection loss of the front surface and the back surface, the transmittance is 90% or less.

Typical Transmittance Data T: Transmission



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Cylindrical
Others

Specifications

Part Number	Designwavelength [nm]	Diameter ϕD [mm]	Focal length f [mm]	Back focal length fb [mm]	NA	Edge thickness te [mm]	Center thickness tc [mm]	Surface irregularity of convex surface [μm]
AGL-10-EA-08P	546.1	ϕ10	8	5.91	0.54	1.82	3.9	< 0.1
AGL-10-EA-10P	546.1	ϕ10	10	7.77	0.44	2.37	4.0	< 0.1
AGL-15-EA-12P	546.1	ϕ15	12	8.93	0.54	2.38	5.5	< 0.1
AGL-20-EA-15P	546.1	ϕ20	15	11.10	0.55	2.54	7.0	< 0.1
AGL-20-EA-18P	546.1	ϕ20	18	13.93	0.51	3.65	7.3	< 0.1
AGL-25-EA-20P	546.1	ϕ25	20	15.64	0.57	2.68	7.85	< 0.1
AGL-25-EA-24P	546.1	ϕ25	24	19.63	0.49	3.60	7.85	< 0.1
AGL-30-EA-24P	546.1	ϕ30	24	18.99	0.56	2.80	9.0	< 0.1
AGL-40-EA-30P	546.1	ϕ40	30	22.47	0.60	4.59	13.5	< 0.1
AGL-50-EA-38P	546.1	ϕ50	38	28.51	0.60	6.03	17.0	< 0.1
AGL-10-EB-08P	546.1	ϕ10	8	5.91	0.54	1.82	3.9	< 0.5
AGL-10-EB-10P	546.1	ϕ10	10	7.77	0.44	2.37	4.0	< 0.5
AGL-15-EB-12P	546.1	ϕ15	12	8.93	0.54	2.38	5.5	< 0.5
AGL-20-EB-15P	546.1	ϕ20	15	11.10	0.55	2.54	7.0	< 0.5
AGL-20-EB-18P	546.1	ϕ20	18	13.93	0.51	3.65	7.3	< 0.5
AGL-25-EB-20P	546.1	ϕ25	20	15.64	0.57	2.68	7.85	< 0.5
AGL-25-EB-24P	546.1	ϕ25	24	19.63	0.49	3.60	7.85	< 0.5
AGL-30-EB-24P	546.1	ϕ30	24	18.99	0.56	2.80	9.0	< 0.5
AGL-40-EB-30P	546.1	ϕ40	30	22.47	0.60	4.59	13.5	< 0.5
AGL-50-EB-38P	546.1	ϕ50	38	28.51	0.60	6.03	17.0	< 0.5
AGL-10-GA-08P	780	ϕ10	8	5.89	0.54	1.76	3.9	< 0.1
AGL-10-GA-10P	780	ϕ10	10	7.75	0.44	2.33	4.0	< 0.1
AGL-15-GA-12P	780	ϕ15	12	8.91	0.54	2.31	5.5	< 0.1
AGL-20-GA-15P	780	ϕ20	15	11.07	0.61	2.43	7.0	< 0.1
AGL-20-GA-18P	780	ϕ20	18	13.89	0.51	3.57	7.3	< 0.1
AGL-25-GA-20P	780	ϕ25	20	15.59	0.58	2.54	7.85	< 0.1
AGL-25-GA-24P	780	ϕ25	24	19.58	0.49	3.51	7.85	< 0.1
AGL-30-GA-24P	780	ϕ30	24	18.94	0.56	2.65	9.0	< 0.1
AGL-40-GA-30P	780	ϕ40	30	22.40	0.61	4.38	13.5	< 0.1
AGL-50-GA-38P	780	ϕ50	38	28.43	0.61	5.76	17.0	< 0.1
AGL-10-GB-08P	780	ϕ10	8	5.89	0.54	1.76	3.9	< 0.5
AGL-10-GB-10P	780	ϕ10	10	7.75	0.44	2.30	4.0	< 0.5
AGL-15-GB-12P	780	ϕ15	12	8.91	0.54	2.31	5.5	< 0.5
AGL-20-GB-15P	780	ϕ20	15	11.07	0.61	2.43	7.0	< 0.5
AGL-20-GB-18P	780	ϕ20	18	13.89	0.51	3.57	7.3	< 0.5
AGL-25-GB-20P	780	ϕ25	20	15.59	0.58	2.57	7.85	< 0.5
AGL-25-GB-24P	780	ϕ25	24	19.58	0.49	3.51	7.85	< 0.5
AGL-30-GB-24P	780	ϕ30	24	18.94	0.56	2.65	9.0	< 0.5
AGL-40-GB-30P	780	ϕ40	30	22.40	0.61	4.38	13.5	< 0.5
AGL-50-GB-38P	780	ϕ50	38	28.43	0.61	5.76	17.0	< 0.5

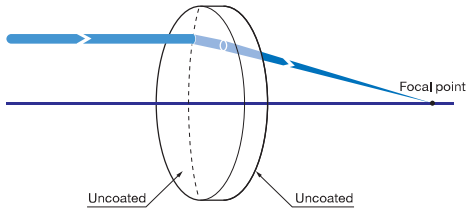
Calcium Fluoride Plano Convex Lens | SLCFU

RoHS Catalog Code W3189

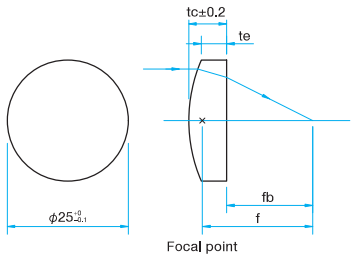
Calcium fluoride (CaF_2) is a crystal which has excellent transmission characteristics in a wide wavelength range from ultraviolet (200nm) to near-infrared (8μm).

- Impurities and crystal defects were reduced, and the transmission characteristics in the ultraviolet region were increased. CaF_2 is used for the range from the ultraviolet to the infrared.
- When compared with other crystals, CaF_2 has high durability to moisture, and it can be treated the same as the general optical elements.
- Since CaF_2 is isotropic crystal, birefringence (polarization characteristics) does not occur.

Schematic



Outline Drawing (in mm)

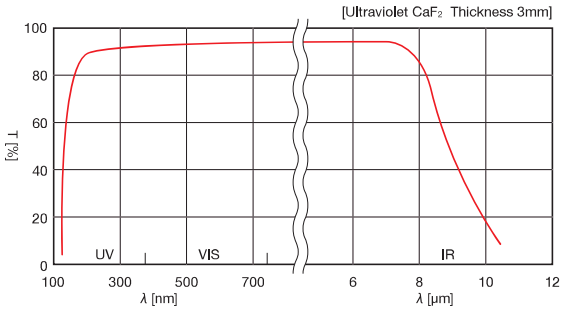


●Chamfer
Ridge line <C0.3
●Tolerance
Focal length ±3%

Specifications

Part Number	Focal length f [mm]	Back focal length fb [mm]	Edge thickness te [mm]	Center thickness tc [mm]
SLCFU-25-50P	50	48	2.0	6.4
SLCFU-25-100P	100	98	2.0	4.1
SLCFU-25-150P	150	148	2.0	3.4
SLCFU-25-200P	200	198	2.0	3.0

Typical Transmittance Data T: Transmission



Specifications

Material	CaF_2 for Optical Crystal
Design Wavelength	5μm
Coating	Uncoated
Surface Reflectance	3% (per side)
Shape	Spherical Plano Convex, Polished Both Surfaces
Centration	<3′
Clear Aperture	90% of diameter
Surface Quality (Scratch–Dig)	60–40

Guide

- It is available with an AR coating to reduce the transmission loss at the requested wavelength.
- It is also available for products with different size and focal lengths that are not listed in on the website or in the catalog.

Attention

- It may be broken and be cleavaged by a sudden temperature change and shock. CaF_2 has low hardness and scratch upon contact with metal and glass. Please use very carefully.
- There is not an anti-reflection coating on the surfaces and the loss due to surface reflection (3% per surface) results in transmittance of about 94%.

Wavelength dependency data of the focal length (CaF_2 plano convex)

Wavelength	0.2μm	0.6328μm	1.064μm	2.94μm	5.0μm	7.0μm
Focal length f [mm]	40.4	46.2	47.7	47.8	50.0	54.2
	80.8	92.4	93.3	95.6	100.0	108.1
	121.2	138.6	140.0	143.4	150.0	162.5
	161.5	184.8	186.7	191.2	200.0	216.7

Physics

Wavelength [nm]	Refractive Index
193.5	1.502
200.0	1.496
248.4	1.467
308.0	1.453
355.0	1.446
404.7	1.442
488.0	1.437
632.8	1.433
694.3	1.432
780.0	1.430
1064	1.429
2000	1.424
3000	1.418
4000	1.410
5000	1.399
6000	1.386
7000	1.369
8000	1.350
9000	1.327
Density	3.18g/cm^3
Thermal Conductivity	9.71W·m^{-1}K^{-1}
Thermal Expansion Coefficient	24×10^{-6}/°C (20 - 60°C)

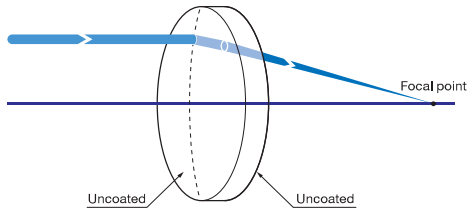
Sapphire Plano Convex Lens | SLSH

RoHS Catalog Code W3190

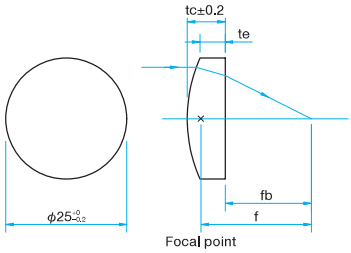
Sapphire crystal is a transparent crystal without absorption from the visible to infrared wavelength of 5μm. In addition, sapphire has extremely hard and resists scratching.

- Sapphire crystal is a very stable material used in optical equipment in the field.
- Since there is no absorption (1.4μm, 2.2μm, 2.7μm) by water (OH radical), it can be used on a lens for the analyzer for near-infrared.

Schematic



Outline Drawing (in mm)



●Chamfer
Ridge line <C0.3
●Tolerance
Focal length ±3%

Specifications

Material	Optical sapphire crystal (uniaxial crystal)
Design Wavelength	546.1nm
Coating	Uncoated
Shape	Spherical Plano Convex Polished Both Surfaces
Centration	<10′
Clear Aperture	90% of diameter
Surface Quality (Scratch–Dig)	60–40

Guide

- Sapphire jewelry is the thing that metal ions such as iron and titanium are mixed with natural sapphire crystal. The artificial sapphire crystal is colorless and transparent. It is available for the AR coating to reduce the transmission loss at the requested wavelength.
- It can be used safely because it is harmless to the human body.

Attention

- Transmissions losses due to reflection off the front and rear surfaces can be minimized by coating the surfaces. Consult our Sales Division for anti-reflection coatings suitable for your application.

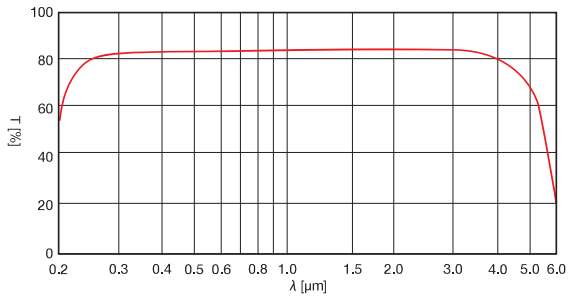
Specifications

Part Number	Focal length f [mm]	Back focal length fb [mm]	Edge thickness te [mm]	Center thickness tc [mm]
SLSH-25-50P	50	47.7	2.0	4.1
SLSH-25-100P	100	98.3	2.0	3.0
SLSH-25-200P	200	198.6	2.0	2.5

Physics

Wavelength [nm]	Refractive Index
248.4	1.834
325.0	1.804
365.0	1.794
404.7	1.786
587.6	1.769
694.3	1.764
1014	1.756
1800	1.742
2200	1.733
3400	1.699
4500	1.650
Density	3.98g/cm^3
Thermal Conductivity	42W·m^{-1}K^{-1} (25°C)
Thermal Expansion Coefficient	6.9×10^{-6}/°C (Perpendicular to the C axis 200°C) 7.6×10^{-6}/°C (Parallel to the C axis 200°C)

Typical Transmittance Data T: Transmission



Single Lenses for CO_2 Lasers | SLZS

RoHS Catalog Code W3074

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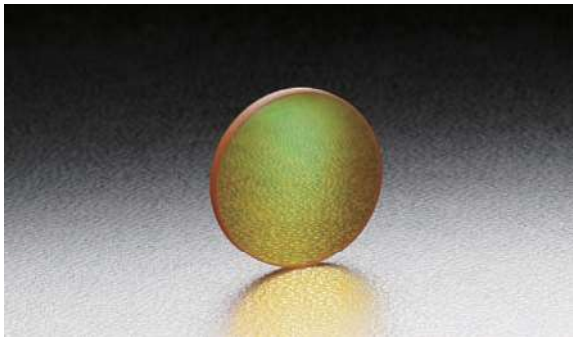
Cylindrical
Others

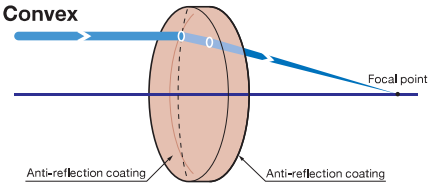
These spherical single lenses are made of zinc selenide. In contrast to other optical materials for infrared wavelengths such as Ge (germanium) or Si (silicon), ZnSe lenses transmit some visible light, facilitating optical axis adjustment (alignment) of infrared laser systems using lower cost He-Ne lasers. Lenses intended for use with CO_2 lasers have AR coatings.

- High powered lasers often emit laser light in the infrared region. Such systems require careful handling, since infrared laser light is invisible. Because of this laser light, preliminary alignment of optical parts in many cases are essential. While zinc selenide transmit some light in the visible spectrum, it allows easier alignment of other optical components.

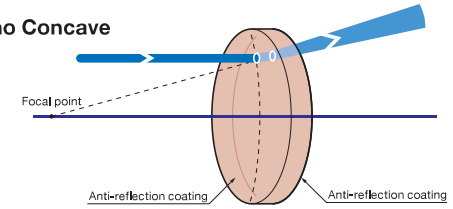


Schematic

Plano Convex

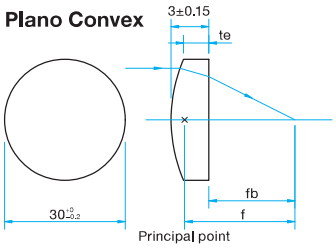


Plano Concave

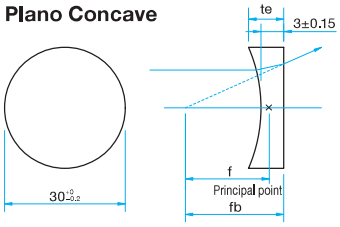


Outline Drawing (in mm)

Plano Convex



Plano Concave



Refractive index	
Wavelength Range [μm]	n
0.58	2.631
0.65	2.584
1.0	2.489
2.2	2.444
4.2	2.432
6.2	2.425
8.2	2.416
10.6	2.403
16.2	2.353
Density	5.27g/cm^3
Thermal expansion coefficient	7.1×10^{-6}/K
Thermal conductivity	18W·m^{-1}K^{-1}

Important: Treatment of ZnSe optics

ZnSe (Zinc selenide) is Poisonous and harmful substance classified as legal, depending on the specifications, the certificate of delivery may be required for acquisition of Poisonous and harmful substances. **In addition, ZnSe Optics disposal after use is prohibited in general.**
Lenses that are no longer needed, please return it to us.
However, we only take back products that we supplied. This policy noted is in Japan and other countries may differ in the treament of ZnSe (Zinc selenide), please contact your local sales office .

Specifications

Material	ZnSe crystal
Design wavelength	10.6μm
Coating	AR coating (both surfaces)
Transmittance	99% or more
Centration	<3′
Surface Quality (Scratch–Dig)	40–20

Guide

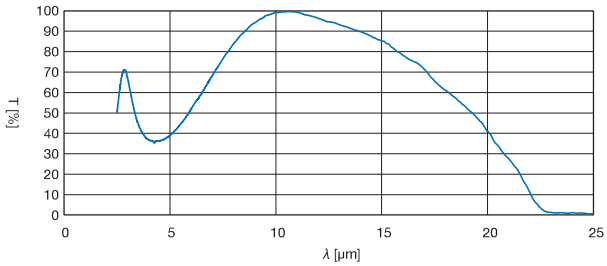
- For other focal length and diameter size not listed on the website or in our current catalog, please contact our Sales Division with your request.

Attention

- Hydrogen selenium is harmful when it comes in contact with strong acids! Do not immerse the lens in hydrochloric or sulphuric acid.
- When light is condensed on the surface of ZnSe, the high power laser beam may produce toxic gases due to the thermal decomposition. In addition, a large amount of gas and powder occurs when the ZnSe lens is damaged by the laser thermal runaway. In case of the ZnSe lens is damaged by any chance, DO NOT handle the lens with your bare hands. Collect the debris and be careful not to inhale the powder and gas generated.
- Please check the "wavelength characteristic of the focal length data" on our web-site. WEB Reference Catalog Code W3074
- There is a possibility that the spherical aberration will increase and optical performance of the system will be degrated if use in reverse. The focused spot may enlarge and the image will appear un-focused.

Typical Transmittance Data

T: Transmission



Plano Convex

Part Number	Focal length f [mm]	Edge thickness te [mm]	Center thickness fb [mm]	Radius of curvature r [mm]
SLZS-30-100PCO2	100	2.2	98.8	140.3
SLZS-30-150PCO2	150	2.5	148.8	210.5
SLZS-30-200PCO2	200	2.6	198.8	280.6

Plano Conceve

Part Number	Focal length f [mm]	Edge thickness te [mm]	Center thickness fb [mm]	Radius of curvature r [mm]
SLZS-30-50NCO2	–50	4.6	–51.2	–70.2

Meniscus Lens for CO_2 Laser | SLZS2

RoHS Catalog Code W3191

Zinc selenide (ZnSe) meniscus Lens (ZnSe) is used as a condensing lens with CO_2 laser (10.6μm). The meniscus designed shape is optimized to minimize spherical aberration.

- With anti-reflection coating the loss due to surface reflection can be reduced, and the laser light with high efficiency can be condensed.
- ZnSe crystal has little hygroscopic, it can be handled in the same way as a normal optical element.
- Since ZnSe crystal is a isotropic crystal, it does not have birefringence (polarization characteristics).

Specifications

Material	ZnSe
Design Wavelength	10.6μm
Refractive Index	2.403
Centration	<3′
Coating	AR coating (Wavelength 10.6μm) (Diameter of ϕ25.4mm is wavelength of 650nm and 10.6μm)
Clear Aperture	90% of diameter
Surface Quality (Scratch–Dig)	40–20

Guide

▶We can also provide window plates (OPZS / WZSA) made with ZnSe for CO_2. Reference B321

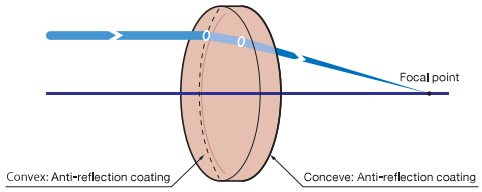
Attention

▶When the high power laser beam is condensed on the surface of ZnSe, due to the thermal decomposition, toxic gas may occur. In addition, a large amount of gas and powder occur when the ZnSe lens is damaged by the laser thermal run-away. If the ZnSe lens is damaged, DO NOT touch the lens by bare hands. Please collect the debris and be careful not to inhale the powder and gas steam generated.

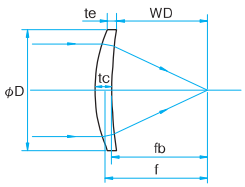
▶Since meniscus lens is a single lens, the focal length will be changed depending on the wavelength.

▶There is a direction to put a light in the Plano convex lens. Please make sure to put the parallel light from the convex side. If it is reserved, the spherical aberration increases, the focused spot becomes large and the image looks blurred.

Schematic



Outline Drawing (in mm)



●Tolerance
Diameter $\phi D^{+0}_{-0.1}$
Thickness te ±0.1
Focal length ±1.5%

Specifications

Part Number	Diameter ϕD [mm]	Focal length f [mm]	Edge thickness te [mm]	Center thickness tc [mm]	Back focal length fb [mm]	WD [mm]
SLZS2-19-38.1PCO2	ϕ19.05	38.1	2.0	2.85	36.1	35.6
SLZS2-19-50.8PCO2	ϕ19.05	50.8	2.0	2.64	49.0	48.6
SLZS2-19-63.5PCO2	ϕ19.05	63.5	2.0	2.51	61.8	61.5
SLZS2-20-38.1PCO2	ϕ20.00	38.1	2.0	2.94	36.1	35.5
SLZS2-20-50.8PCO2	ϕ20.00	50.8	2.0	2.70	48.9	48.5
SLZS2-20-63.5PCO2	ϕ20.00	63.5	2.0	2.58	61.7	61.4
SLZS2-25.4-38.1PCO2	ϕ25.40	38.1	3.0	4.52	35.0	34.1
SLZS2-25.4-63.5PCO2	ϕ25.40	63.5	3.0	3.91	60.9	60.3

Important: Treatment of ZnSe optics

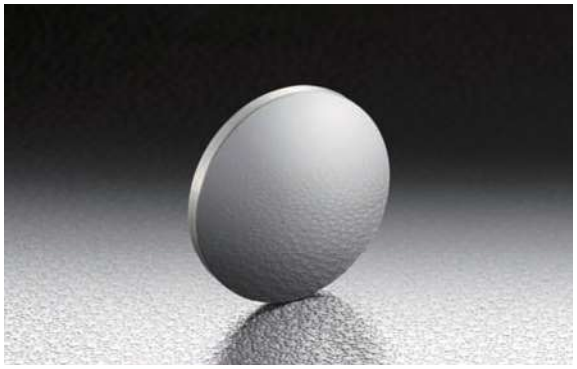
ZnSe (Zinc selenide) is Poisonous and harmful substance classified as legal, depending on the specifications, the certificate of delivery may be required for acquisition of Poisonous and harmful substances. **In addition, ZnSe Optics disposal after use is prohibited in general.**
Lenses that are no longer needed, please return it to us.
However, we only take back products that we supplied. This policy noted is in Japan and other countries may differ in the treament of ZnSe (Zinc selenide), please contact your local sales office.

Silicon Plano Convex Lens | SLSI

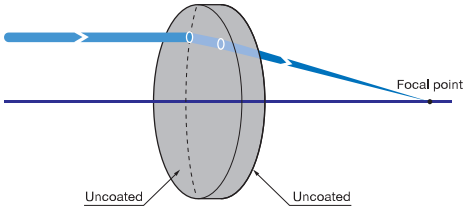
RoHS Catalog Code W3192

The single crystal of silicon used in semiconductor has low absorption in the infrared wavelength of 1.2 - 6μm and it can be used as an optical element for infrared light. It is a spherical plano convex lens that was made with the silicon single crystal.
It is used as a lens for receiving infrared light and in infrared sensors.

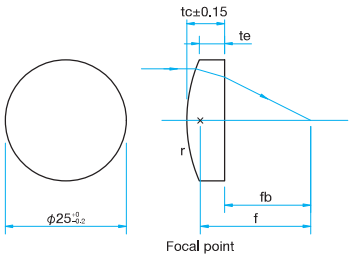
- Even though it looks like the light does not transmit because of its metallic luster, it is transmitting through a wide infrared range of 1.2 - 6μm.
- The wavelength of 1.2μm or less does not transmit, so it also provides the effect of an infrared transmission filter.
- Since the silicon lens has a refractive index of 3 or more, the lens curvature is slower then when made from standard glass.



Schematic



Outline Drawing (in mm)

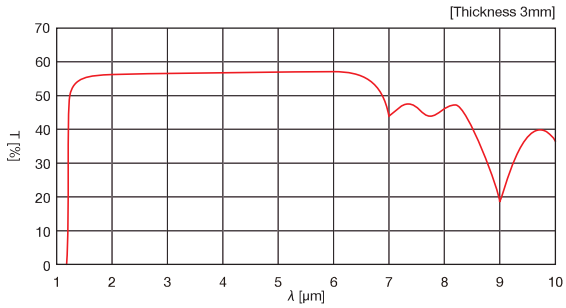


●Chamfer
Ridge line <C0.3
●Tolerance
Focal length ±2%

Specifications

Part Number	Focal length f [mm]	Back focal length fb [mm]	Edge thickness te [mm]	Center thickness tc [mm]
SLSI-25-25P	25	23	2.0	3.3
SLSI-25-50P	50	48	2.0	2.6
SLSI-25-100P	100	98	2.0	2.3

Typical Transmittance Data T: Transmission



Specifications

Material	Silicon (SI)
Design Wavelength	5μm
Coating	Uncoated
Surface Reflectance	30% (per side)
Shape	Spherical Plano Convex Polished Both Surfaces
Centration	<3′
Clear Aperture	90% of diameter
Surface Quality (Scratch–Dig)	60–40

Guide

▶It is available with an AR coating to reduce the transmission loss by reflection at the requested wavelength.

Attention

▶Silicon lens has metallic luster so that visible light is reflected and absorbed. Because of this, no transmittance occurs.
▶Silicon lens without an anti-reflection coating has a loss due to surface reflection and results in transmittance of about 50%.

Physics

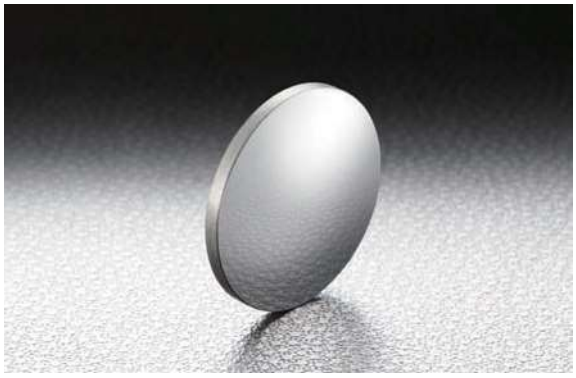
Wavelength [nm]	Refractive Index
1.2	3.519
1.3	3.503
1.4	3.494
1.5	3.483
1.6	3.473
1.8	3.462
2.0	3.454
2.2	3.449
2.4	3.445
2.6	3.441
2.8	3.437
3.0	3.435
3.4	3.433
3.6	3.431
3.8	3.431
4.0	3.430
4.5	3.428
5.0	3.426
5.5	3.425
6.0	3.424
Density	2.33g/cm^3
Thermal Conductivity	129W·m^{-1}K^{-1} (40°C)
Thermal Expansion Coefficient	4.2×10^{-6}/°C (25°C)

Germanium Single Lens | SLGE

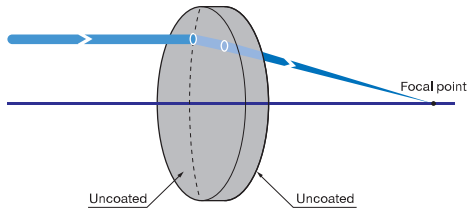
RoHS Catalog Code W3193

The single crystal of germanium used in semiconductor is less absorption in the infrared wavelength of 2 - 20μm and it can be used as an optical element of the infrared light. It is a single lens which was made with the germanium crystal.
It is used as a lens of a camera to observe the infrared, such as thermography.

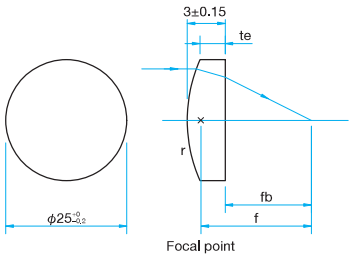
- Even though it looks like the light does not transmit because of its metallic luster, it is transmitting through a wide infrared range of 2 - 20μm.
- The wavelength of 1.5μm or less does not transmit, so it also provides the effect of an infrared transmission filter.
- Since the silicon lens has a refractive index of 4 or more, the lens curvature is slower then when made from standard glass.



Schematic



Outline Drawing (in mm)

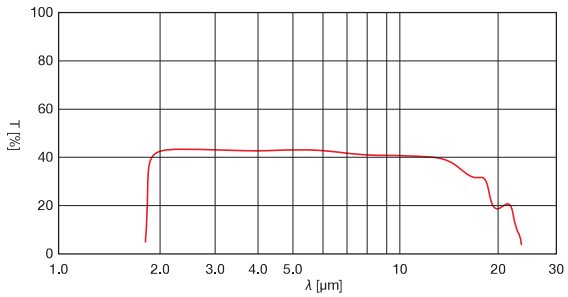


●Chamfer
Ridge line <C0.3
●Tolerance
Focal length ±2%

Specifications

Part Number	Focal length f [mm]	Back focal length fb [mm]	Edge thickness te [mm]
SLGE-25-25P	25	24.25	1.95
SLGE-25-50P	50	49.25	2.48
SLGE-25-100P	100	99.25	2.74

Typical Transmittance Data T: Transmission



Specifications

Material	Germanium (Ge)
Design Wavelength	10.6μm
Coating	Uncoated
Surface Reflectance	36% (per side)
Shape	Spherical Plano Convex Polished Both Surfaces
Centration	<3′
Clear Aperture	90% of diameter
Surface Quality (Scratch–Dig)	60–40

Guide

▶It is available with an AR coating to reduce the transmission loss by reflection at the requested wavelength.

Attention

▶Germanium lens can have metallic luster, so that visible light is reflected and absorbed. Because of this, no transmittance occurs.
▶Germanium lens without an anti-reflection coating has a loss due to surface reflection and results in transmittance of about 40%.
▶For the observation of infrared wavelengths, it is necessary to consider the effect of the radiation spectrum by temperature. In case of using in an environment of 30℃ or more, radiant light of infrared (near 9.6μm) is emitted from all substances, and it will not be able to properly observe this infrared spectrum.

Physics

Wavelength [nm]	Refractive Index	Remarks column
1064	4.4100	YAG laser
1320	4.3050	communication LD
1550	4.2300	communication LD
2000	4.1200	
3000	4.0443	
4000	4.0250	
5000	4.0162	
6000	4.0115	
7000	4.0086	
8000	4.0067	
9000	4.0054	
9400	4.0049	CO_2 laser
10600	4.0035	CO_2 laser
12000	4.0029	
13000	4.0022	
14000	4.0018	
15000	4.0013	
16000	4.0009	
17000	4.0004	
18000	4.0000	
19000	3.9996	
20000	3.9992	
Density	$5.33 g/cm^3$	
Thermal Conductivity	$58.6 W \cdot m^{-1} K^{-1}$ (20°C)	
Thermal Expansion Coefficient	5.5×10^{-6}/°C (25°C)	

Contact sheet

Catalog Code W3807

Contact sheet for Special Order for Lenses

☐ Estimation ☐ Order

Date

☐ To: Sigma Koki Co., Ltd. **FAX +81-3-5638-6550**

Affiliation (Organization Name)					
Department					
TEL		FAX		E-mail	
Country/Address					
Name & Designation	(Tentative name is okay)				
Drawing Number		Estimate	☐ Yes: by Date	☐ No	
Desired Delivery Date		Budget	JP Yen		
Specifications of Lens	Quantity				
	Shape	☐ Ball Lens ☐ Aspherical Lens ☐ Lens for CO_2 Lasers ☐ Hemispherical Lens ☐ Cylindrical Lens ☐ Rod Lens ☐ Other ( )			
Specifications of Coating	Metal coating	☐ Al only ☐ Al+MgF_2 ☐ Cr+Au ☐ Other ( )			
	Dielectric coating	Wavelength Range	λ = nm	Incident angle	θ = ° Reflection rate %
	Anti-reflection coating	Wavelength Range	λ = nm	Incident angle	θ = ° ☐ Single-layer AR coating ☐ Multi-layer AR coating
	Polarization conditions	☐ Unpolarized ☐ P polarization ☐ S polarization			
Other	* Write more detailed specifications here. (Rough illustration is acceptable.)				