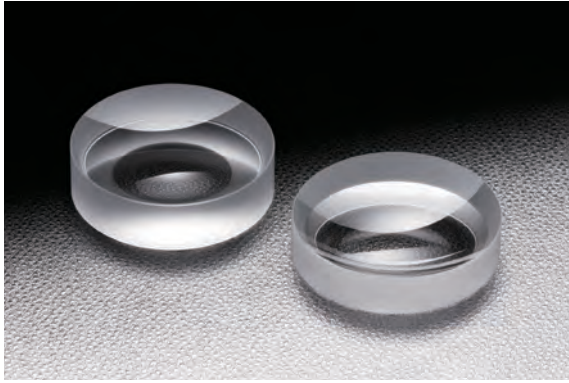
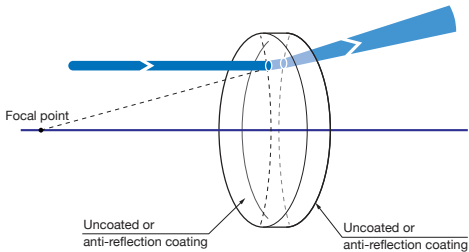


These biconcave lenses are used when a very high negative power is required. They can be used in a multi-element system or alone to produce a diverging cone or virtual image. Sharpe edges, which are common in negative lenses, are removed by beveling to reduce the likelihood of chipping.

- 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.

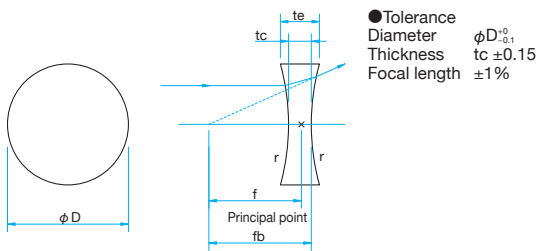


Schematic



Outline Drawing

(in mm)



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

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
- ▶ Transmission 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

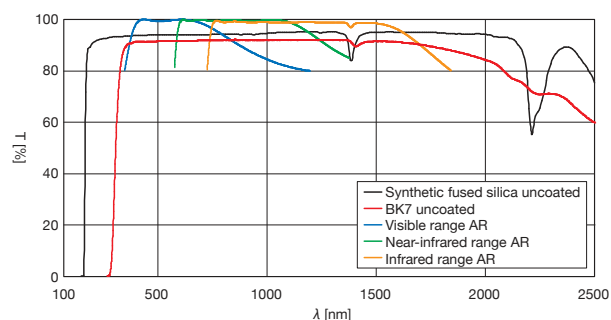
In case of specifying a anti-reflection coating 633nm – 1064nm to near infrared lens of SLB-50.8B-200N.  
⇒ SLB-50.8B-200NIR1

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



BK7  $\phi 10 - \phi 50.8$ 

## Application Systems

## Optics &amp; Optical Coatings

## Opto-Mechanics

## Bases

## Manual Stages

## Actuators &amp; Adjusters

## Motorized Stages

## Light Sources &amp; Laser Safety

## Index

## Guide

## Mirrors

## Beamsplitters

## Polarizers

## Lenses

## Multi-Element Optics

## Filters

## Prisms

## Substrates/Windows

## Optical Data

## Maintenance

## Selection Guide

## Plano Convex Lenses

## Plano Concave Lenses

## Biconvex Lenses

## Biconcave Lenses

## Kit

## Reasonable Lens

## Cylindrical

## Others

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

## Compatible Optic Mounts

LHF-10S, -12.7S, -15S, -20S, -25S, -25.4S, -30S, -40S, -50S, -50.8S / MLH-10, -15



**Synthetic fused silica  $\phi 10 - \phi 50.8$**

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

**Compatible Optic Mounts**

LHF-10S, -12.7S, -15S, -20S, -25S, -25.4S, -30S, -40S, -50S, -50.8S / MLH-10, -15

- Application Systems
- Optics & Optical Coatings
- Opto-Mechanics
- Bases
- Manual Stages
- Actuators & Adjusters
- Motoeized Stages
- Light Sources & Laser Safety
- Index
- Guide
- Mirrors
- Beamsplitters
- Polarizers
- Lenses
- Multi-Element Optics
- Filters
- Prisms
- Substrates/Windows
- Optical Data
- Maintenance
- Selection Guide
- Plano Convex Lenses
- Plano Concave Lenses
- Biconvex Lenses
- Biconcave Lenses
- Kit
- Reasonable Lens
- Cylindrical
- Others