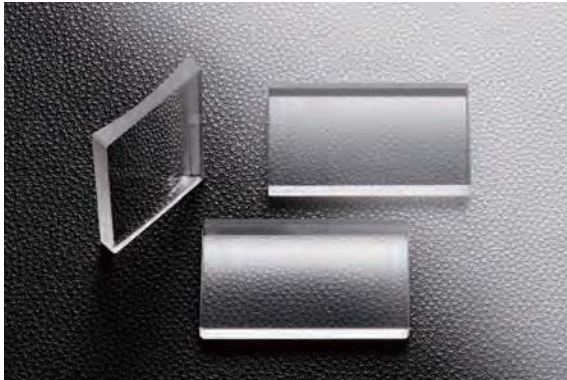


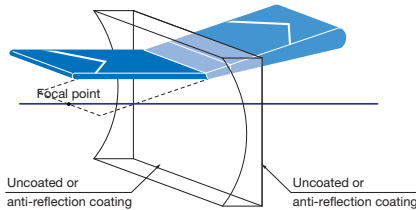
Cylindrical plano-concave lens has a concave curvature in the vertical direction and has no curvature in the horizontal direction.

When used in combination with a plano-convex cylindrical lens an elliptical shaped beam can be sharpened 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.

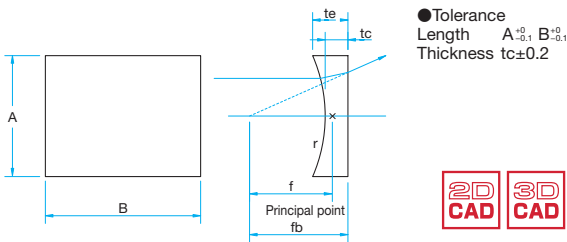


### Schematic



### Outline Drawing

(in mm)



### 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-3050-200NIR1

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.

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

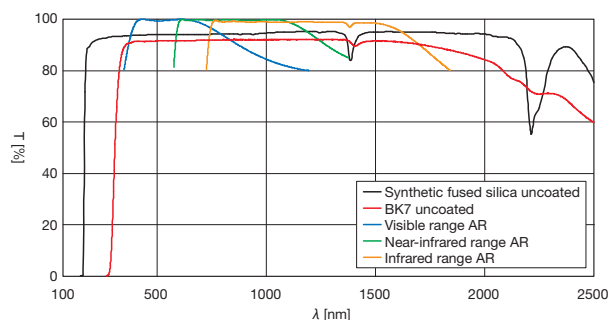
### Guide

- ▶ 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).

### 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.
- ▶ 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 degraded 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.

### Typical Transmittance Data



### Compatible Optic Mounts

CHA-25, -60

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

BK7 10x10mm – 30x50mm		How to specify the anti-reflection coating			AxB [mm]	Focal length f [mm]	Edge thickness te [mm]	Center thickness tc [mm]	Back focal length fb [mm]	Radius of curvature r [mm]
Uncoated	How to specify the anti-reflection coating									
Part Number	Visibe 400 – 700nm	Near-infrared 633 – 1064nm	Infrared 750 – 1550nm							
CLB-1010-15N	M	IR1	IR2	10x10	-15	4.0	2.2	-16.4	7.79	
CLB-1010-20N	M	IR1	IR2	10x10	-20	3.0	1.7	-21.1	10.38	
CLB-1010-25N	M	IR1	IR2	10x10	-25	3.0	2.0	-26.3	12.98	
CLB-1010-30N	M	IR1	IR2	10x10	-30	3.0	2.2	-31.4	15.57	
CLB-1010-40N	M	IR1	IR2	10x10	-40	3.0	2.4	-41.6	20.76	
CLB-1020-15N	M	IR1	IR2	10x20	-15	4.0	2.2	-16.4	7.79	
CLB-1020-20N	M	IR1	IR2	10x20	-20	3.0	1.7	-21.1	10.38	
CLB-1020-25N	M	IR1	IR2	10x20	-25	3.0	2.0	-26.3	12.98	
CLB-1020-30N	M	IR1	IR2	10x20	-30	3.0	2.2	-31.4	15.57	
CLB-1020-40N	M	IR1	IR2	10x20	-40	3.0	2.4	-41.6	20.76	
CLB-1515-20N	M	IR1	IR2	15x15	-20	5.0	1.8	-21.2	10.38	
CLB-1515-25N	M	IR1	IR2	15x15	-25	5.0	2.6	-26.7	12.98	
CLB-1515-30N	M	IR1	IR2	15x15	-30	4.0	2.1	-31.4	15.57	
CLB-1515-40N	M	IR1	IR2	15x15	-40	4.0	2.6	-41.7	20.76	
CLB-1525-20N	M	IR1	IR2	15x25	-20	5.0	1.8	-21.2	10.38	
CLB-1525-25N	M	IR1	IR2	15x25	-25	5.0	2.6	-26.7	12.98	
CLB-1525-30N	M	IR1	IR2	15x25	-30	4.0	2.1	-31.4	15.57	
CLB-1525-40N	M	IR1	IR2	15x25	-40	4.0	2.6	-41.7	20.76	
CLB-2020-25N	M	IR1	IR2	20x20	-25	7.0	2.3	-26.5	12.98	
CLB-2020-30N	M	IR1	IR2	20x20	-30	6.0	2.4	-31.6	15.57	
CLB-2020-40N	M	IR1	IR2	20x20	-40	5.0	2.4	-41.6	20.76	
CLB-2020-50N	M	IR1	IR2	20x20	-50	4.0	2.0	-51.3	25.95	
CLB-2020-60N	M	IR1	IR2	20x20	-60	4.0	2.4	-61.5	31.14	
CLB-2020-70N	M	IR1	IR2	20x20	-70	4.0	2.6	-71.7	36.33	
CLB-2020-80N	M	IR1	IR2	20x20	-80	4.0	2.8	-81.8	41.52	
CLB-2020-100N	M	IR1	IR2	20x20	-100	4.0	3.0	-102.0	51.90	
CLB-2020-130N	M	IR1	IR2	20x20	-130	4.0	3.3	-132.1	67.47	
CLB-2020-150N	M	IR1	IR2	20x20	-150	4.0	3.4	-152.2	77.85	
CLB-2020-200N	M	IR1	IR2	20x20	-200	4.0	3.5	-202.3	103.80	
CLB-2020-250N	M	IR1	IR2	20x20	-250	4.0	3.6	-252.4	129.75	
CLB-2020-300N	M	IR1	IR2	20x20	-300	4.0	3.7	-302.4	155.70	
CLB-2030-100N	M	IR1	IR2	20x30	-100	4.0	3.0	-102.0	51.90	
CLB-2030-130N	M	IR1	IR2	20x30	-130	4.0	3.3	-132.1	67.47	
CLB-2030-150N	M	IR1	IR2	20x30	-150	4.0	3.4	-152.2	77.85	
CLB-2030-200N	M	IR1	IR2	20x30	-200	4.0	3.5	-202.3	103.80	
CLB-2030-250N	M	IR1	IR2	20x30	-250	4.0	3.6	-252.4	129.75	
CLB-2030-300N	M	IR1	IR2	20x30	-300	4.0	3.7	-302.4	155.70	
CLB-2040-25N	M	IR1	IR2	20x40	-25	7.0	2.3	-26.5	12.98	
CLB-2040-30N	M	IR1	IR2	20x40	-30	6.0	2.4	-31.6	15.57	
CLB-2040-40N	M	IR1	IR2	20x40	-40	5.0	2.4	-41.6	20.76	
CLB-2040-50N	M	IR1	IR2	20x40	-50	4.0	2.0	-51.3	25.95	
CLB-2040-60N	M	IR1	IR2	20x40	-60	4.0	2.4	-61.5	31.14	
CLB-2040-70N	M	IR1	IR2	20x40	-70	4.0	2.6	-71.7	36.33	
CLB-2040-80N	M	IR1	IR2	20x40	-80	4.0	2.8	-81.8	41.52	
CLB-2050-100N	M	IR1	IR2	20x50	-100	4.0	3.0	-102.0	51.90	
CLB-2050-130N	M	IR1	IR2	20x50	-130	4.0	3.3	-132.1	67.47	
CLB-2050-150N	M	IR1	IR2	20x50	-150	4.0	3.4	-152.2	77.85	
CLB-2050-200N	M	IR1	IR2	20x50	-200	4.0	3.5	-202.3	103.80	
CLB-2050-250N	M	IR1	IR2	20x50	-250	4.0	3.6	-252.4	129.75	
CLB-2050-300N	M	IR1	IR2	20x50	-300	4.0	3.7	-302.4	155.70	
CLB-3030-50N	M	IR1	IR2	30x30	-50	7.0	2.2	-51.5	25.95	
CLB-3030-60N	M	IR1	IR2	30x30	-60	6.0	2.1	-61.4	31.14	
CLB-3030-70N	M	IR1	IR2	30x30	-70	5.0	1.8	-71.2	36.33	
CLB-3030-80N	M	IR1	IR2	30x30	-80	5.0	2.2	-81.4	41.52	
CLB-3030-100N	M	IR1	IR2	30x30	-100	5.0	2.8	-101.8	51.90	
CLB-3030-130N	M	IR1	IR2	30x30	-130	5.0	3.3	-132.2	67.47	
CLB-3030-150N	M	IR1	IR2	30x30	-150	5.0	3.5	-152.3	77.85	
CLB-3030-200N	M	IR1	IR2	30x30	-200	5.0	3.9	-202.6	103.80	
CLB-3030-250N	M	IR1	IR2	30x30	-250	5.0	4.1	-252.7	129.75	
CLB-3030-300N	M	IR1	IR2	30x30	-300	5.0	4.3	-302.8	155.70	
CLB-3040-50N	M	IR1	IR2	30x40	-50	7.0	2.2	-51.5	25.95	
CLB-3040-60N	M	IR1	IR2	30x40	-60	6.0	2.1	-61.4	31.14	
CLB-3040-70N	M	IR1	IR2	30x40	-70	5.0	1.8	-71.2	36.33	
CLB-3040-80N	M	IR1	IR2	30x40	-80	5.0	2.2	-81.4	41.52	
CLB-3050-100N	M	IR1	IR2	30x50	-100	5.0	2.8	-101.8	51.90	
CLB-3050-130N	M	IR1	IR2	30x50	-130	5.0	3.3	-132.2	67.47	
CLB-3050-150N	M	IR1	IR2	30x50	-150	5.0	3.5	-152.3	77.85	
CLB-3050-200N	M	IR1	IR2	30x50	-200	5.0	3.9	-202.6	103.80	
CLB-3050-250N	M	IR1	IR2	30x50	-250	5.0	4.1	-252.7	129.75	
CLB-3050-300N	M	IR1	IR2	30x50	-300	5.0	4.3	-302.8	155.70	



**Synthetic fused silica 10x10mm – 30x50mm**

Part Number	AxB [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	10x10	-15	4.0	1.9	-16.3	6.90
CLSQ-1010-20N	10x10	-20	3.0	1.5	-21.0	9.20
CLSQ-1010-25N	10x10	-25	3.0	1.9	-26.3	11.50
CLSQ-1010-30N	10x10	-30	3.0	2.1	-31.4	13.80
CLSQ-1010-40N	10x10	-40	3.0	2.3	-41.6	18.40
CLSQ-1020-15N	10x20	-15	4.0	1.9	-16.3	6.90
CLSQ-1020-20N	10x20	-20	3.0	1.5	-21.0	9.20
CLSQ-1020-25N	10x20	-25	3.0	1.9	-26.3	11.50
CLSQ-1020-30N	10x20	-30	3.0	2.1	-31.4	13.80
CLSQ-1020-40N	10x20	-40	3.0	2.3	-41.6	18.40
CLSQ-1515-20N	15x15	-20	6.0	2.1	-21.5	9.20
CLSQ-1515-25N	15x15	-25	5.0	2.2	-26.5	11.50
CLSQ-1515-30N	15x15	-30	4.0	1.8	-31.2	13.80
CLSQ-1515-40N	15x15	-40	4.0	2.4	-41.6	18.40
CLSQ-1525-20N	15x25	-20	6.0	2.1	-21.5	9.20
CLSQ-1525-25N	15x25	-25	5.0	2.2	-26.5	11.50
CLSQ-1525-30N	15x25	-30	4.0	1.8	-31.2	13.80
CLSQ-1525-40N	15x25	-40	4.0	2.4	-41.6	18.40
CLSQ-2020-25N	20x20	-25	7.0	1.2	-25.8	11.50
CLSQ-2020-30N	20x20	-30	6.0	1.7	-31.2	13.80
CLSQ-2020-40N	20x20	-40	5.0	2.0	-41.4	18.40
CLSQ-2020-50N	20x20	-50	4.0	1.7	-51.2	23.00
CLSQ-2020-60N	20x20	-60	4.0	2.1	-61.5	27.60
CLSQ-2020-70N	20x20	-70	4.0	2.4	-71.6	32.20
CLSQ-2020-80N	20x20	-80	4.0	2.6	-81.8	36.80
CLSQ-2020-100N	20x20	-100	4.0	2.9	-102.0	46.00
CLSQ-2020-130N	20x20	-130	4.0	3.2	-132.2	59.80
CLSQ-2020-150N	20x20	-150	4.0	3.3	-152.2	69.00
CLSQ-2020-200N	20x20	-200	4.0	3.5	-202.4	92.00
CLSQ-2020-250N	20x20	-250	4.0	3.6	-252.4	115.00
CLSQ-2020-300N	20x20	-300	4.0	3.6	-302.5	138.00
CLSQ-2040-25N	20x40	-25	7.0	1.2	-25.8	11.50
CLSQ-2040-30N	20x40	-30	6.0	1.7	-31.2	13.80
CLSQ-2040-40N	20x40	-40	5.0	2.0	-41.4	18.40
CLSQ-2040-50N	20x40	-50	4.0	1.7	-51.2	23.00
CLSQ-2040-60N	20x40	-60	4.0	2.1	-61.5	27.60
CLSQ-2040-70N	20x40	-70	4.0	2.4	-71.6	32.20
CLSQ-2040-80N	20x40	-80	4.0	2.6	-81.8	36.80
CLSQ-2050-100N	20x50	-100	4.0	2.9	-102.0	46.00
CLSQ-2050-130N	20x50	-130	4.0	3.2	-132.2	59.80
CLSQ-2050-150N	20x50	-150	4.0	3.3	-152.2	69.00
CLSQ-2050-200N	20x50	-200	4.0	3.5	-202.4	92.00
CLSQ-2050-250N	20x50	-250	4.0	3.6	-252.4	115.00
CLSQ-2050-300N	20x50	-300	4.0	3.6	-302.5	138.00
CLSQ-3030-50N	30x30	-50	7.0	1.4	-51.0	23.00
CLSQ-3030-60N	30x30	-60	6.0	1.6	-61.1	27.60
CLSQ-3030-70N	30x30	-70	6.0	2.3	-71.6	32.20
CLSQ-3030-80N	30x30	-80	5.0	1.8	-81.2	36.80
CLSQ-3030-100N	30x30	-100	5.0	2.5	-101.7	46.00
CLSQ-3030-130N	30x30	-130	5.0	3.1	-132.1	59.80
CLSQ-3030-150N	30x30	-150	5.0	3.3	-152.3	69.00
CLSQ-3030-200N	30x30	-200	5.0	3.8	-202.6	92.00
CLSQ-3030-250N	30x30	-250	5.0	4.0	-252.8	115.00
CLSQ-3030-300N	30x30	-300	5.0	4.2	-302.9	138.00
CLSQ-3040-50N	30x40	-50	7.0	1.4	-51.0	23.00
CLSQ-3040-60N	30x40	-60	6.0	1.6	-61.1	27.60
CLSQ-3040-70N	30x40	-70	6.0	2.3	-71.6	32.20
CLSQ-3040-80N	30x40	-80	5.0	1.8	-81.2	36.80
CLSQ-3050-100N	30x50	-100	5.0	2.5	-101.7	46.00
CLSQ-3050-130N	30x50	-130	5.0	3.1	-132.1	59.80
CLSQ-3050-150N	30x50	-150	5.0	3.3	-152.3	69.00
CLSQ-3050-200N	30x50	-200	5.0	3.8	-202.6	92.00
CLSQ-3050-250N	30x50	-250	5.0	4.0	-252.8	115.00
CLSQ-3050-300N	30x50	-300	5.0	4.2	-302.9	138.00

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