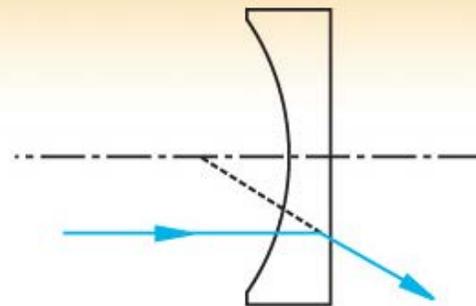


LK1995L1 - November 11, 2016

Item # LK1995L1 was discontinued on November 11, 2016. For informational purposes, this is a copy of the website content at that time and is valid only for the stated product.

PLANO-CONCAVE CYLINDRICAL LENSES, N-BK7, UNCOATED

- ▶ Ideal for Applications Requiring Magnification in One Dimension
- ▶ Provide Anamorphic Shaping of Images
- ▶ Used to Transform a Collimated Beam into a Line



LK1836L2



LK1982L2



LK1526L1

OVERVIEW

Features

- Made of N-BK7 Glass
- Uncoated Wavelength Range: 350 nm - 2.0 μ m
- Focal Lengths from -3.9 mm to -1000.0 mm
- Focal Length Tolerance: $\pm 1\%$

Negative cylindrical lenses act as plano-concave spherical lenses, except on only one axis. These lenses are used in applications that require one dimensional shaping of a light source. A typical application is to use a single cylindrical lens to turn a collimated laser into a line generator. Pairs of cylindrical lenses may be used to anamorphically shape images. To minimize the introduction of aberration, the curved surface of the lens should face the source when used to diverge a beam.

These N-BK7 Plano-Concave Cylindrical lenses are available uncoated or with one of three Antireflection Coatings, which can reduce the amount of light reflected from each surface of the lens. The uncoated lenses are highlighted on this page. Lenses with a -A (350 - 700 nm range), -B (650 - 1050 nm range), or -C (1050 - 1700 nm range) antireflection coating are featured elsewhere. Please see the

Uncoated Plano-Concave Cylindrical Lenses ^a		
Material	N-BK7	
Uncoated Wavelength Range ^b	350 nm - 2.0 μ m	
Design Wavelength	587.6 nm	
Length Tolerance	+0.00 / -0.10 mm	
Height Tolerance	+0.00 / -0.10 mm	
Center Thickness Tolerance	± 0.1 mm	
Focal Length Tolerance	$\pm 1\%$	
Surface Quality	60-40 Scratch/Dig	
Centration	For f ≤ 50 mm: ≤ 5 arcmin For f > 50 mm: ≤ 3 arcmin	
Surface Flatness (Plano Side)	Height	$\lambda/2$
	Length	$\lambda/2$
Cylindrical Surface Power ^c (Concave Side)	Height	$3\lambda/2$
	Length	$3\lambda/2$
Surface Irregularity	Height (Plano, Curved)	$\lambda/4, \lambda$

Graphs tab for coating information.

For cage system and lens tube compatibility, please see our Mounted Plano-Concave Round Cylindrical lenses. These lenses are typically easier to integrate into our standard optomechanics.



(Peak to Valley)	Length (Plano, Curved)	$\lambda/4$, λ/cm
Clear Aperture		>90% of Surface Dimensions

- a. These lenses are also available with a -A, -B, or -C antireflection coating.
- b. Uncoated Wavelength Range: 350 nm - 2.0 μ m
- c. Much like surface flatness for flat optics, surface power is a measure of the deviation between the surface of the curved optic and a calibrated reference gauge, typically for a 633 nm source, unless otherwise stated. This specification is also commonly referred to as surface fit.

Zemax Files

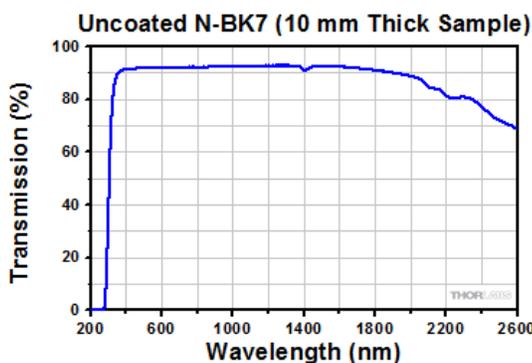
Click on the red Document icon next to the item numbers below to access the Zemax file download. Our entire Zemax Catalog is also available.

Plano-Concave Cylindrical Lens Selection Guide				
Substrate	N-BK7	UV Fused Silica	N-BK7 (Round)	UV Fused Silica (Round)
AR Coating Range	Uncoated 350 - 700 nm 650 - 1050 nm 1050 - 1700 nm	Uncoated 290 - 370 nm	Uncoated 350 - 700 nm 650 - 1050 nm 1050 - 1700 nm	Uncoated 350 - 700 nm 650 - 1050 nm 1050 - 1700 nm

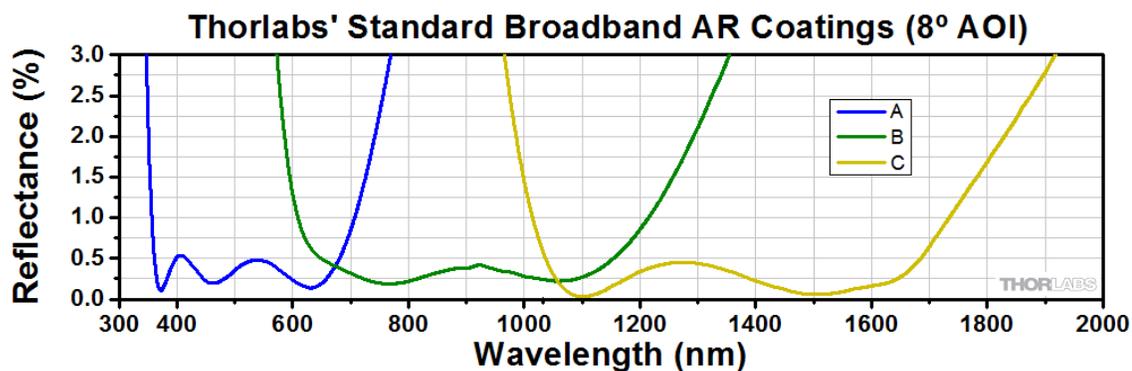
GRAPHS

All cylindrical lenses can be ordered uncoated and the cylindrical lenses made from N-BK7 can be ordered with one of the following broadband AR coatings: -A: 350-700 nm, -B: 650-1050 nm, or -C: 1050-1700 nm

These high performance multilayer AR coatings have an average reflectance of less than 0.5% (per surface) across the specified wavelength ranges. The central peak in each curve is less than 0.25%. These coatings provide good performance for angles of incidence (AOI) between 0° and 30° (0.5 NA). For optics intended to be used at large angles, consider using a custom coating optimized at a 45° angle of incidence; this custom coating is effective from 25° to 52°. The plot shown below indicates the performance of the standard coatings in this family as a function of wavelength.



Click to Enlarge
Click Here for Raw Data



[Hide Plano-Concave Cylindrical Lenses, N-BK7, Uncoated \(f=-3.9 to -25.4 mm\)](#)

Plano-Concave Cylindrical Lenses, N-BK7, Uncoated (f=-3.9 to -25.4 mm)

Item #	Focal Length ^a	Length	Height	Radius	Center Thickness	Edge Thickness	Back Focal Length	Reference Drawing
LK1395L1	-3.9 mm	6.0 mm	4.0 mm	-2.0 mm	2.0 mm	2.7 mm	-5.2 mm	
LK1597L2	-4.0 mm	8.0 mm	4.0 mm	-2.1 mm	2.0 mm	2.6 mm	-5.3 mm	
LK1523L1	-5.8 mm	6.0 mm	4.0 mm	-3.0 mm	2.0 mm	2.4 mm	-7.1 mm	
LK1087L1	-6.4 mm	8.0 mm	6.0 mm	-3.3 mm	2.0 mm	3.2 mm	-7.7 mm	
LK1087L2		12.0 mm						
LK1363L2	-7.7 mm	14.0 mm	7.0 mm	-4.0 mm	2.0 mm	3.4 mm	-9.0 mm	
LK1836L1	-9.7 mm	12.0 mm	10.0 mm	-5.0 mm	2.0 mm	4.8 mm	-11.0 mm	
LK1836L2		20.0 mm						
LK1684L1	-12.7 mm	12.0 mm	10.0 mm	-6.6 mm	2.0 mm	3.8 mm	-14.0 mm	
LK1816L1	-13.7 mm	15.0 mm	13.0 mm	-7.1 mm	2.0 mm	5.3 mm	-15.0 mm	
LK1753L1	-15.0 mm	12.0 mm	10.0 mm	-7.8 mm	2.0 mm	3.4 mm	-16.3 mm	
LK1037L1	-19.0 mm	21.0 mm	19.0 mm	-9.8 mm	2.0 mm	8.8 mm	-20.3 mm	
LK1085L1	-20.0 mm	17.0 mm	15.0 mm	-10.3 mm	2.0 mm	4.7 mm	-21.3 mm	
LK1085L2		30.0 mm						
LK1006L1	-22.2 mm	15.0 mm	12.5 mm	-11.5 mm	2.0 mm	3.5 mm	-23.5 mm	
LK1426L1	-25.0 mm	12.0 mm	10.0 mm	-12.9 mm	2.0 mm	2.8 mm	-26.2 mm	
LK1900L1	-25.4 mm	18.0 mm	16.0 mm	-13.1 mm	2.0 mm	4.4 mm	-26.7 mm	

a. All focal lengths are specified at the design wavelength (587.6 nm). Since the index of refraction for N-BK7 is inversely proportional to the wavelength, the focal length of each lens becomes longer (more negative) with increasing wavelength.

Part Number	Description	Price	Availability
LK1395L1	f=-3.9 mm, H=4.0 mm, L=6 mm, N-BK7 Plano-Concave Cylindrical Lens, Uncoated	\$45.30	Today
LK1597L2	f=-4 mm, H=4.0 mm, L=8 mm, N-BK7 Plano-Concave Cylindrical Lens, Uncoated	\$51.80	Today
LK1523L1	f=-5.8 mm, H=4.0 mm, L=6 mm, N-BK7 Plano-Concave Cylindrical Lens, Uncoated	\$45.30	Today
LK1087L1	f=-6.4 mm, H=6.0 mm, L=8 mm, N-BK7 Plano-Concave Cylindrical Lens, Uncoated	\$51.10	Today
LK1087L2	f=-6.4 mm, H=6.0 mm, L=12 mm, N-BK7 Plano-Concave Cylindrical Lens, Uncoated	\$60.40	Today
LK1363L2	f=-7.7 mm, H=7.0 mm, L=14 mm, N-BK7 Plano-Concave Cylindrical Lens, Uncoated	\$60.50	Today
LK1836L1	f=-9.7 mm, H=10 mm, L=12 mm, N-BK7 Plano-Concave Cylindrical Lens, Uncoated	\$62.60	Today
LK1836L2	f=-9.7 mm, H=10 mm, L=20 mm, N-BK7 Plano-Concave Cylindrical Lens, Uncoated	\$73.20	Today
LK1684L1	f=-12.7 mm, H=10 mm, L=12 mm, N-BK7 Plano-Concave Cylindrical Lens, Uncoated	\$50.70	Today
LK1816L1	f=-13.7 mm, H=13 mm, L=15 mm, N-BK7 Plano-Concave Cylindrical Lens, Uncoated	\$59.40	Today

LK1753L1	f=-15 mm, H=10 mm, L=12 mm, N-BK7 Plano-Concave Cylindrical Lens, Uncoated	\$51.80	Today
LK1037L1	f=-19 mm, H=19 mm, L=21 mm, N-BK7 Plano-Concave Cylindrical Lens, Uncoated	\$75.50	Today
LK1085L1	f=-20 mm, H=15 mm, L=17 mm, N-BK7 Plano-Concave Cylindrical Lens, Uncoated	\$64.80	Today
LK1085L2	f=-20 mm, H=15 mm, L=30 mm, N-BK7 Plano-Concave Cylindrical Lens, Uncoated	\$78.50	Today
LK1006L1	f=-22 mm, H=12.5 mm, L=15 mm, N-BK7 Plano-Concave Cylindrical Lens, Uncoated	\$58.30	Today
LK1426L1	f=-25 mm, H=10 mm, L=12 mm, N-BK7 Plano-Concave Cylindrical Lens, Uncoated	\$51.80	Today
LK1900L1	f=-25.4 mm, H=16 mm, L=18 mm, N-BK7 Plano-Concave Cylindrical Lens, Uncoated	\$66.80	Today

[Hide Plano-Concave Cylindrical Lenses, N-BK7, Uncoated \(f=-30 to -80 mm\)](#)

Plano-Concave Cylindrical Lenses, N-BK7, Uncoated (f=-30 to -80 mm)

Item #	Focal Length ^a	Length	Height	Radius	Center Thickness	Edge Thickness	Back Focal Length	Reference Drawing
LK1982L1	-30.0 mm	22.0 mm	20.0 mm	-15.5 mm	2.0 mm	5.3 mm	-31.3 mm	
LK1982L2		40.0 mm						
LK1283L1	-40.0 mm	12.0 mm	10.0 mm	-20.7 mm	2.0 mm	2.5 mm	-41.3 mm	
LK1662L1	-50.0 mm	22.0 mm	20.0 mm	-25.8 mm	2.0 mm	3.8 mm	-51.3 mm	
LK1336L1	-50.0 mm	32.0 mm	30.0 mm	-25.8 mm	2.0 mm	6.5 mm	-51.3 mm	
LK1792L1	-51.0 mm	53.0 mm	50.8 mm	-26.4 mm	2.0 mm	19.9 mm	-52.3 mm	
LK1995L1	-60.0 mm	32.0 mm	30.0 mm	-31.0 mm	2.0 mm	5.6 mm	-71.3 mm	
LK1913L1	-70.0 mm	32.0 mm	30.0 mm	-36.2 mm	2.0 mm	5.2 mm	-71.3 mm	
LK1431L1	-75.0 mm	53.0 mm	50.8 mm	-38.8 mm	2.0 mm	11.1 mm	-76.3 mm	
LK1526L1	-80.0 mm	22.0 mm	20.0 mm	-41.3 mm	3.0 mm	4.1 mm	-82.0 mm	

a. All focal lengths are specified at the design wavelength (587.6 nm). Since the index of refraction for N-BK7 is inversely proportional to the wavelength, the focal length of each lens becomes longer (more negative) with increasing wavelength.

Part Number	Description	Price	Availability
LK1982L1	f=-30 mm, H=20 mm, L=22 mm, N-BK7 Plano-Concave Cylindrical Lens, Uncoated	\$77.70	Today
LK1982L2	f=-30 mm, H=20 mm, L=40 mm, N-BK7 Plano-Concave Cylindrical Lens, Uncoated	\$96.80	Today
LK1283L1	f=-40 mm, H=10 mm, L=12 mm, N-BK7 Plano-Concave Cylindrical Lens, Uncoated	\$51.80	Today
LK1662L1	f=-50 mm, H=20 mm, L=22 mm, N-BK7 Plano-Concave Cylindrical Lens, Uncoated	\$77.70	Today
LK1336L1	f=-50 mm, H=30 mm, L=32 mm, N-BK7 Plano-Concave Cylindrical Lens, Uncoated	\$106.00	Today
LK1792L1	f=-51.0 mm, H=50.8 mm, L=53 mm, N-BK7 Plano-Concave Cylindrical Lens, Uncoated	\$162.00	Today
LK1995L1	f=-60 mm, H=30 mm, L=32 mm, BK7 Plano-Concave Cylindrical Lens, Uncoated	\$97.80	Lead Time
LK1913L1	f=-70 mm, H=30 mm, L=32 mm, N-BK7 Plano-Concave Cylindrical Lens, Uncoated	\$101.00	Today
LK1431L1	f=-75 mm, H=50.8 mm, L=53 mm, N-BK7 Plano-Concave Cylindrical Lens, Uncoated	\$162.00	Today
LK1526L1	f=-80 mm, H=20 mm, L=22 mm, N-BK7 Plano-Concave Cylindrical Lens, Uncoated	\$77.70	Today

[Hide Plano-Concave Cylindrical Lenses, N-BK7, Uncoated \(f=-100 to -1000 mm\)](#)

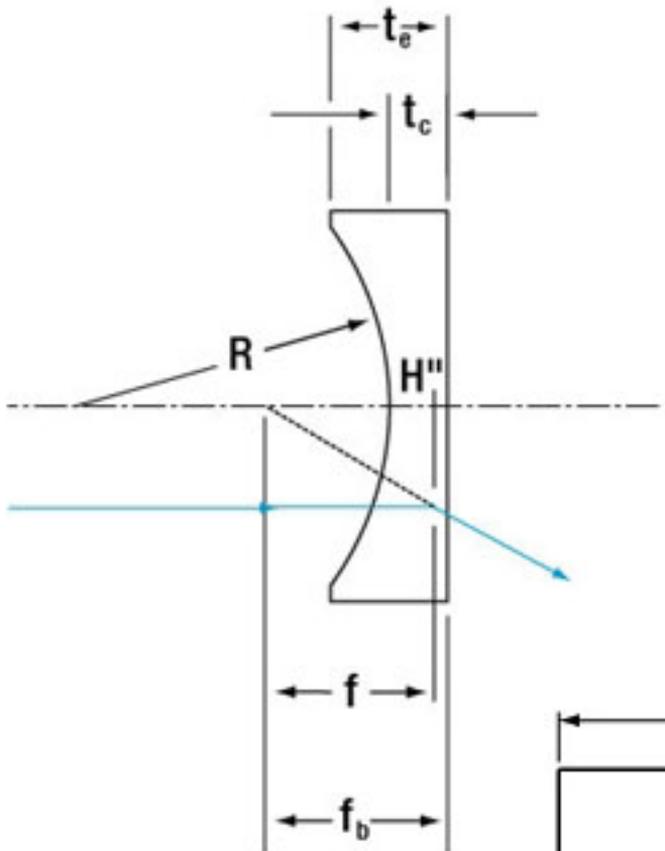
Plano-Concave Cylindrical Lenses, N-BK7, Uncoated (f=-100 to -1000 mm)

Item #	Focal Length ^a	Length	Height	Radius	Center Thickness	Edge Thickness	Back Focal Length	Reference Drawing
LK1743L1	-100.0 mm	32.0 mm	30.0 mm	-51.7 mm	3.0 mm	5.1 mm	-102.0 mm	
LK1936L1	-100.0 mm	90.0 mm	100.0 mm	-51.7 mm	3.0 mm	39.9 mm	-102.0 mm	
LK1419L1	-150.0 mm	32.0 mm	30.0 mm	-77.5 mm	3.0 mm	4.4 mm	-152.0 mm	
LK1069L1	-200.0 mm	32.0 mm	30.0 mm	-103.4 mm	3.0 mm	4.0 mm	-202.0 mm	

LK1030L1	-250.0 mm	32.0 mm	30.0 mm	-129.2 mm	3.0 mm	3.8 mm	-252.0 mm
LK1487L1	-400.0 mm	32.0 mm	30.0 mm	-206.7 mm	3.0 mm	3.5 mm	-402.0 mm
LK1002L1	-1000.0 mm	32.0 mm	30.0 mm	-516.8 mm	3.0 mm	3.2 mm	-1002.0 mm

a. Since the index of refraction for N-BK7 is inversely proportional to the wavelength, the focal length of each lens becomes longer (more negative) with increasing wavelength.

Part Number	Description	Price	Availability
LK1743L1	f=-100 mm, H=30 mm, L=32 mm, N-BK7 Plano-Concave Cylindrical Lens, Uncoated	\$106.00	Today
LK1936L1	f=-100 mm, H=100 mm, L=90 mm, N-BK7 Plano-Concave Cylindrical Lens, Uncoated	\$269.30	Today
LK1419L1	f=-150 mm, H=30 mm, L=32 mm, N-BK7 Plano-Concave Cylindrical Lens, Uncoated	\$106.00	3-5 Days
LK1069L1	f=-200 mm, H=30 mm, L=32 mm, N-BK7 Plano-Concave Cylindrical Lens, Uncoated	\$106.00	3-5 Days
LK1030L1	f=-250 mm, H=30 mm, L=32 mm, N-BK7 Plano-Concave Cylindrical Lens, Uncoated	\$106.00	3-5 Days
LK1487L1	f=-400 mm, H=30 mm, L=32 mm, N-BK7 Plano-Concave Cylindrical Lens, Uncoated	\$106.00	Today
LK1002L1	f=-1000 mm, H=30 mm, L=32 mm, N-BK7 Plano-Concave Cylindrical Lens, Uncoated	\$106.00	Today



- f : Focal Length
- f_b : Back Focal Length
- R : Radius of Curvature
- t_c : Center Thickness
- t_e : Edge Thickness
- H'' : Back Principal Plane
- L : Length
- H : Height

