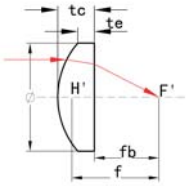
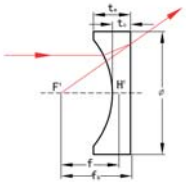
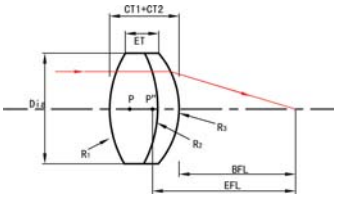
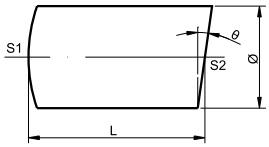
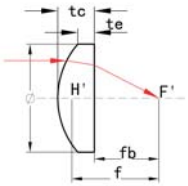
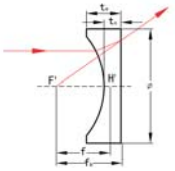
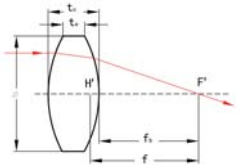
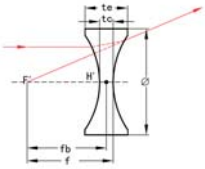
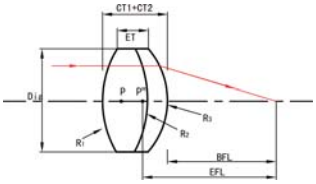
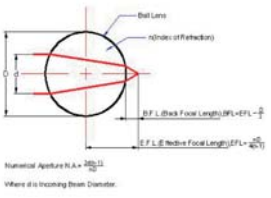
LENS OVERVIEW

A transparent optical component consisting of one or more pieces of optical glass with curved surfaces (usually spherical) that they serve to converge or diverge the transmitted rays from an object, thus forming a real or virtual image of that object. Dayoptics provides these lenses with the material of BK7, fused silica, sapphire, CaF_2 and MgF_2 as standard. Other materials lenses are available upon requirement.

Lens	Material	Illustration	Page
Plano Convex Cylinder Lens	BK7 Fused Silica		45
Plano Concave Cylinder Lens	BK7 Fused Silica		46
Cylinder Positive Achromatic Lens	Depend on the design		47
C-Lens	Depend on the design		48
Plano Convex Lens	BK7 Fused Silica		49

LENS OVERVIEW

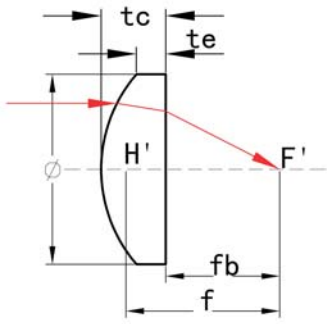


Lens	Material	Illustration	Page
Plano Concave Lens	BK7 Fused Silica		50
Double Convex Lens	BK7 Fused Silica		51
Double Concave Lens	BK7 Fused Silica		52
Achromatic Lens	Depend on the design		53
Ball Lens	BK7 Fused Silica		54

PLANO CONVEX CYLINDRICAL LENS

Specifications

Material	BK7;UV-Fused Silica
Design Wavelength	589.6nm
Diameter Tolerance	+0.0, -0.15mm
Thickness Tolerance	+/-0.1mm
Paraxial Focal Length Tolerance	±2%
Centration	3 arc minutes
Clear Aperture	>85%
Surface Figure	λ /4@632.8nm
Surface Quality	60/40 Scratch/Dig
Bevel	0.25 mm x 45°
Coating	Uncoated



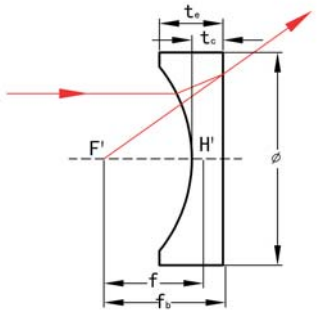
BK7/Fused Silica Plano Convex Cylindrical Lens

Part No	Φ (mm)	f (mm)	R1 (mm)	t c (mm)	t e (mm)	f b (mm)	Material
PCYX1101	12.7	50	25.8	3	2.2	48.02	BK7
PCYX1102	12.7	150	77.4	3	2.74	148.02	BK7
PCYX1103	12.7	200	103.2	3	.2.8	198.02	BK7
PCYX2201	25.4	200	91.6	3	2.11	197.942	Fused Silica
PCYX2202	25.4	300	135	3	2.4	297.93	Fused Silica
PCYX2203	25.4	400	180	3	2.55	397.93	Fused Silica
PCYX2301	10x10	25	11.45	3	1.85	22.942	Fused Silica
PCYX2302	10x10	50	22.9	3	2.447	47.942	Fused Silica
PCYX2401	20x20	100	45.8	3	1.895	97.942	Fused Silica
PCYX2402	20x20	200	91.6	3	2.453	197.942	Fused Silica

PLANO CONCAVE CYLINDRICAL LENS

Specifications

Material	BK7;Fused Silica
Design Wavelength	589.6nm
Diameter Tolerance	+0.0, -0.15mm
Thickness Tolerance	+/-0.1mm
Paraxial Focal Length Tolerance	±2%
Centration	3 arc minutes
Clear Aperture	>85%
Surface Figure	λ /4@632.8nm
Surface Quality	60/40 Scratch/Dig
Bevel	0.25 mm x 45°
Coating	Uncoated



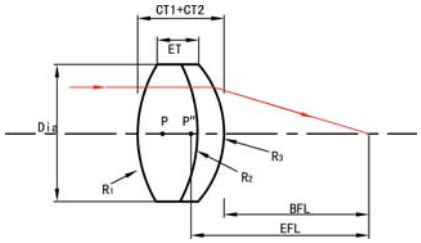
BK7/Fused Silica Plano Convex Cylindrical Lens

Part No	Φ (mm)	f (mm)	R1 (mm)	t c (mm)	t e (mm)	f b (mm)	Material
PCYV1101	12.5	-25	12.9	2	3.62	-26.32	BK7
PCYV1102	12.5	-40	20.64	2	2.97	-41.32	BK7
PCYV1103	12.5	-60	30.96	2	2.64	-61.32	BK7
PCYV2201	25.4	-100	45.8	3	4.796	-102.058	Fused Silica
PCYV2202	25.4	-200	91.6	3	3.88	-202.058	Fused Silica
PCYV2203	25.4	-300	137.4	3	3.58	-302.058	Fused Silica
PCYV2301	10x10	-25	11.45	2	3.15	-26.372	Fused Silica
PCYV2302	10x10	-40	18.32	2	2.69	-41.372	Fused Silica
PCYV2401	25x25	-600	274.8	2	2.284	-601.372	Fused Silica
PCYV2402	25x25	-800	366.4	2	2.213	-801.372	Fused Silica

CYLINDER POSITIVE ACHROMATIC LENSES

Specifications

Material	BK7;SF5
Design Wavelength	589.6nm
Diameter Tolerance	+0.0, -0.15mm
Thickness Tolerance	+/-0.1mm
Paraxial Focal Length Tolerance	±2%
Centration	3 arc minutes
Clear Aperture	>85%
Surface Figure	λ /4@632.8nm
Surface Quality	60/40 Scratch/Dig
Bevel	0.25 mm x 45°
Coating	Uncoated



Positive Achromatic Lenses

Part No.	Φ (mm)	f (mm)	R1(mm)	R2=R3(mm)	R4(mm)	CT1(mm)	CT2(mm)	fb(mm)	Lens A	Lens B
ALYP1301	12.5	25	10.55	10.55	200.14	7	2	18.32	BK7	SF5
ALYP1302	12.5	50	24.97	24.97	119.88	4	2	46.39	BK7	SF5
ALYP1303	12.5	75	38.1	38.1	172.49	3.5	2	71.79	BK7	SF5
ALYP1304	12.5	100	51.21	51.21	225.98	2	2	97.15	BK7	SF5

Fast-axis Collimation (Aspherical Cylindrical lenses)

The most important optical component in the beam forming systems in high-power diode lasers is the fast-axis-collimation optic. The lenses are manufactured from high-quality glass and have an aspherical surface. Their high numerical aperture permits the entire diode output to be collimated with outstanding beam quality. The high transmission and excellent collimation characteristics guarantee the highest levels of beam forming efficiency for diode lasers.

Advantages

Aspheric cylindrical lens
High beam quality
High numerical aperture (NA 0.64-0.86)
Diffraction-limited collimation
High transmission
Long term stability

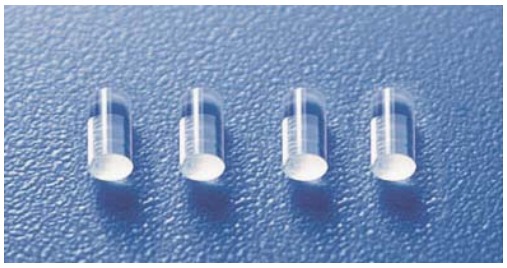
Standard Specifications of Fast-axis Collimation

Part No	L(mm)	W(mm)	H(mm)	EFA(mm)	NA	WD(mm)	Coating
FAC0101	12	1.5	1.5	0.89	0.64	0.085	AR@808nm
FAC0201	5	1.6	1.22	0.9	0.86	0.228	AR@808nm
FAC0301	3	1.6	1.22	0.9	0.86	0.228	AR@808nm

C-LENS

Features

- Low Insertion Loss
- High precision

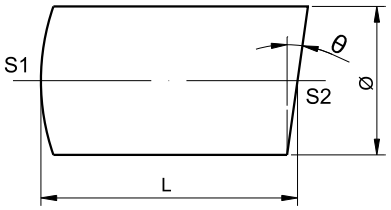


Applications

- Collimators
- Isolators
- Switches
- Collimator Array
- Laser Assembly

Specifications

Diameter tolerance	+0.005/-0.01mm
Length Toerance	+/-0.04mm
Polarization Prcservation	>0.99
Thermal Expansion Coefficient	$<6.0x10^{-6}/℃$
Acid5and Alkaline Resistance	Excellent
Max Power Handing	>600MW
Coating	R<0.25%@Yc+40nm

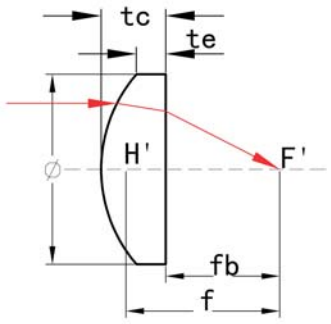


Part No	θ (Heg)	Ø (mm)	Central Wavelength(nm)	L (mm)
CLS0101	8	1.0	1550	2.62
CLS0102	8	1.8	1550	2.94
CLS0103	8	1.8	1310	3.85
CLS0104	8	1.8	1550	3.85
CLS0105	8	1.8	1550	6.61

PLANO CONVEX LENS

Specifications

Material	BK7
Design Wavelength	546.1nm
Design Index	1.5183 ±0.0005
Diameter Tolerance	+0.0, -0.15mm
Paraxial Focal Length Tolerance	±2%
Centration	3 arc minutes
Clear Aperture	>85%
Surface Figure	λ /4@632.8nm
Surface Quality	60/40 Scratch/Dig
Bevel	0.25 mm x 45°
Coating	Uncoated



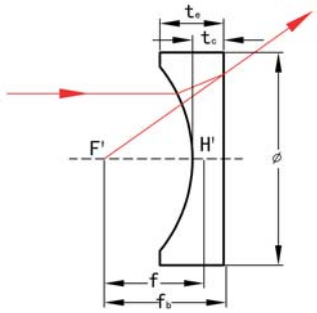
BK7 Plano Convex Lens

Part No	Φ (mm)	f (mm)	R1 (mm)	t c (mm)	t e (mm)	f b (mm)
PCX1201	12.7	15	7.78	5.3	2	11.5
PCX1202	12.7	20	10.37	4.2	2	17.2
PCX1203	12.7	25	12.96	3.7	2	22.6
PCX1204	12.7	30	15.55	3.4	2	27.8
PCX1205	12.7	40	20.73	3	2	38
PCX1206	12.7	50	25.92	2.8	2	48.2
PCX1207	20	35	18.155	4.2	1.2	32.2
PCX1208	20	40	20.73	4.5	1.9	37
PCX1209	20	50	25.936	4	2	47.4
PCX1303	25.4	50	25.92	5.3	2	46.5
PCX1309	25.4	60	31.1	4.7	2	56.9
PCX1304	25.4	75	38.87	4.1	2	72.3
PCX1305	25.4	100	51.83	3.6	2	97.6
PCX1306	25.4	125	64.79	3.3	2	122.8
PCX1307	25.4	150	77.75	3	2	148
PCX1308	25.4	200	103.66	2.8	2	198.2

PLANO CONCAVE LENS

Specifications

Material	BK7
Design Wavelength	546.1nm
Design Index	1.5183 ±0.0005
Diameter Tolerance	+0.0, -0.15mm
Paraxial Focal Length Tolerance	±2%
Centration	3 arc minutes
Clear Aperture	>85%
Surface Figure	λ /4@632.8nm
Surface Quality	60/40 Scratch/Dig
Bevel	0.25 mm x 45°
Coating	Uncoated



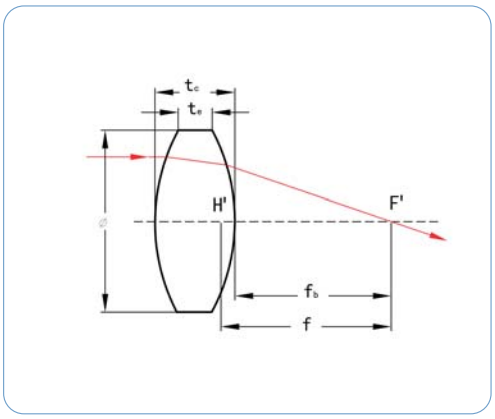
BK7 Plano Convex Lens

Part No.	Φ (mm)	f (mm)	R1 (mm)	t c (mm)	t e (mm)	f b (mm)
PCV1201	12.7	-15	7.78	2	5.3	-16.3
PCV1202	12.7	-20	10.37	2	4.1	-21.3
PCV1203	12.7	-25	12.96	2	3.7	-26.3
PCV1204	12.7	-30	15.55	2	3.4	-31.3
PCV1205	12.7	-40	20.73	2	3	-41.3
PCV1206	12.7	-50	25.92	2	2.8	-51.3
PCV1301	25.4	-25	12.97	2	10.9	-26.3
PCV1302	25.4	-35	18.14	2	7.2	-36.3
PCV1303	25.4	-50	25.92	2	5.3	-51.3
PCV1305	25.4	-75	38.87	2	4.1	-76.3
PCV1306	25.4	-100	51.83	2	3.6	-101.3
PCV1307	25.4	-150	77.75	2	3	-151.3
PCV1308	25.4	-200	103.66	2	2.7	-201.3

DOUBLE CONVEX LENS

Specifications

Material	BK7
Design Wavelength	546.1nm
Design Index	1.5183 ±0.0005
Diameter Tolerance	+0.0, -0.15mm
Paraxial Focal Length Tolerance	±2%
Centration	3 arc minutes
Clear Aperture	>85%
Surface Figure	λ /4@632.8nm
Surface Quality	60/40 Scratch/Dig
Bevel	0.25 mm x 45°
Coating	Uncoated

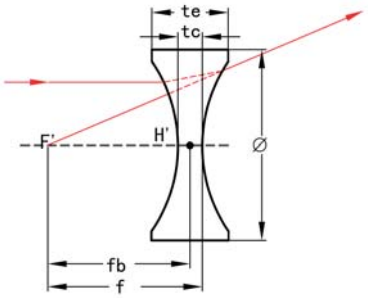


Part No.	Φ (mm)	f (mm)	R1 (mm)	t c (mm)	t e (mm)	f b (mm)
DCX1201	12.7	20	20.01	4	2	18.6
DCX1202	12.7	25	25.28	3.6	2	23.8
DCX1203	12.7	30	30.52	3.3	2	28.9
DCX1204	12.7	40	40.95	3	2	39
DCX1301	25.4	25.4	24.71	9	2	22.2
DCX1314	25.4	35	35.09	6.8	2	32.8
DCX1315	25.4	40	40.4	6.1	2	37.9
DCX1302	25.4	50	50.92	5.2	2	48.3
DCX1316	25.4	60	61.4	4.7	2	58.5
DCX1303	25.4	75	77.04	4.1	2	73.6
DCX1304	25.4	100	103.05	3.6	2	98.8
DCX1305	25.4	125	129.02	3.3	2	123.9
DCX1306	25.4	150	154.97	3	2	149
DCX1307	25.4	200	206.84	2.8	2	199
DCX1308	25.4	250	258.7	2.6	2	249.1
DCX1309	25.4	300	310.55	2.5	2	299.2
DCX1310	25.4	400	413.8	2.4	2	399
DCX1311	25.4	500	517.91	2.3	2	499.2
DCX1312	25.4	750	774.3	2.3	2	748.8
DCX1313	25.4	1000	1036.23	2.2	2	999.3

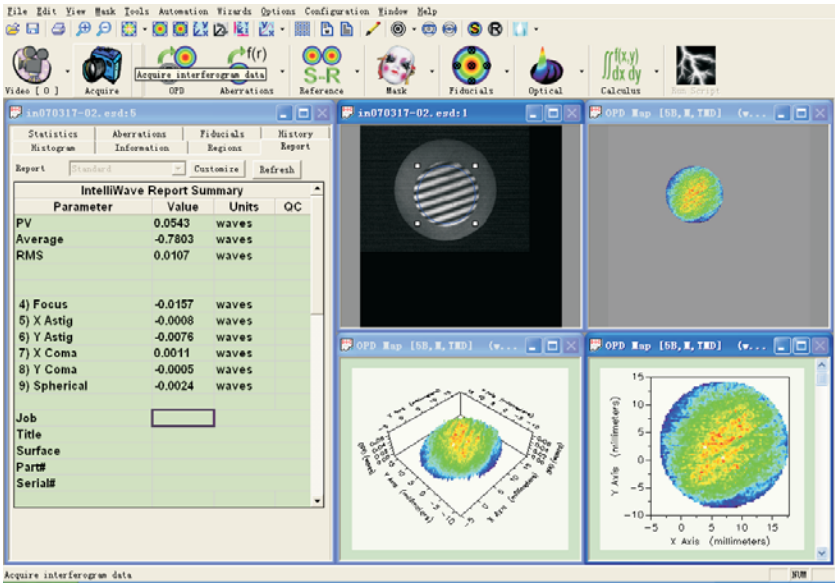
DOUBLE CONCAVE LENS

Specifications

Material	BK7
Design Wavelength	546.1nm
Design Index	1.5183 ±0.0005
Diameter Tolerance	+0.0, -0.15mm
Paraxial Focal Length Tolerance	±2%
Centration	3 arc minutes
Clear Aperture	>85%
Surface Figure	λ /4@632.8nm
Surface Quality	60/40 Scratch/Dig
Bevel	0.25 mm x 45°
Coating	Uncoated



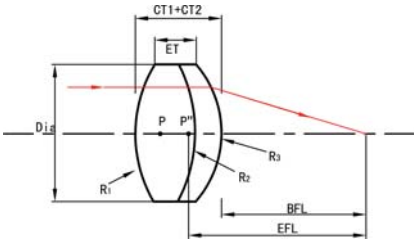
Part No.	ϕ (mm)	f (mm)	R1 (mm)	t c (mm)	t e (mm)	f b (mm)
DCV1201	12.7	-25	26.25	2	3.6	-25.7
DCV1202	12.7	-30	31.44	2	3.3	-30.7
DCV1203	12.7	-40	41.8	2	3	-40.7
DCV1204	12.7	-50	52.17	2	2.8	-50.7
DCV1301	25	-25	26.25	2	8.6	-25.7
DCV1302	25.4	-35	36.62	2	6.5	-35.7
DCV1303	25.4	-50	52.17	2	5.1	-50.7
DCV1305	25.4	-75	78.09	2	4.1	-75.7
DCV1306	25.4	-100	104	2	3.6	-100.7



ACHROMATIC LENSES

Specifications

Design Wavelength	480.0, 546.1, 643.8nm
Diameter Tolerance	+0.0, -0.15mm
Paraxial Focal Length Tolerance	±2%
Centration	3 arc minutes
Clear Aperture	>85%
Surface Figure	λ /4@632.8nm
Surface Quality	60/40 Scratch/Dig
Bevel	< 0.25 mm x 45°
Coating	λ /4 Wave MgF_2@550nm



Positive Achromatic Lenses

Part No.	Φ (mm)	f (mm)	R1(mm)	R2=R3(mm)	R4(mm)	CT1(mm)	CT2(mm)	fb(mm)	Lens A	Lens B
ALP0101	6	15	8.831	-6.546	-19.77	2.71	1	13.066	BK7	SF5
ALP0102	6	20	12.356	-8.511	-24.38	2.6	1	18.288	BK7	SF5
ALP0103	6	25	15.704	-10.666	-29.99	2.3	1	23.455	BK7	SF5
ALP0104	6	30	18.88	-12.942	-36.48	1.9	1	28.695	BK7	SF5
ALP0105	8	25	15.596	-10.814	-30.48	2.9	1	23.125	BK7	SF5
ALP0106	8	30	18.88	-12.882	-36.22	2.7	1	28.277	BK7	SF5
ALP0107	10	20	12.3	-9.02	-25.23	3.6	1	17.625	BK7	SF5
ALP0201	12	25	15.346	-11.35	-31.92	4.2	1.3	22.286	BK7	SF5
ALP0202	12.7	25	15.596	-11.402	-31.05	4.3	1.3	22.251	BK7	SF5
ALP0203	12.7	30	18.535	-13.49	-37.84	4	1.3	27.36	BK7	SF5
ALP0204	12.7	40	25.23	-17.539	-48.75	3.4	1.3	37.778	BK7	SF5
ALP0205	12.7	50	31.26	-21.93	-62.37	3.1	1.3	47.992	BK7	SF5
ALP0206	12.7	60	37.33	-26.42	-75.86	2.8	1.3	58.127	BK7	SF5
ALP0207	12.7	75	46.77	-32.96	-94.62	2.6	1.3	73.227	BK7	SF5
ALP0208	20	65	40.09	-29.58	-83.59	6.3	2	60.868	BK7	SF5
ALP0301	25.4	60	37.33	-27.16	-75.86	7	2	55.565	BK7	SF5
ALP0302	25.4	120	73.28	-54.33	-159.96	4.2	2	117.103	BK7	Sf5

Negative Achromatic Lenses

Part No.	Φ (mm)	f (mm)	R1(mm)	R2=R3(mm)	R4(mm)	CT1(mm)	CT2(mm)	fb(mm)	Lens A	Lens B
ALN0201	12.7	-25	-15.6	13.09	44.16	3	2.67	-27.5	BK7	F2
ALN0202	12.7	-40	-24.45	17.97	66.6	3	2.34	-42.5	BK7	F2
ALN0301	25.4	-50	-31.19	24.89	85.31	3	4.22	-53.3	BK7	F2

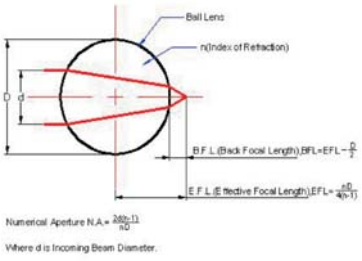
BALL LENS

Product Overview

Ball lenses are near perfect polished spheres of glass or other transparent materials used to focus light from laser sources into fibers and to couple light from fiber to fiber by matching the N.A.(numerical aperture) of the balls to the fibers. Balls can be machined into drums for higher fiber array pitch and mounting alignment accuracy.

Specifications

Material	BK7 and other optical glass
Diameter tolerance	+0/-0.005mm
Spericity	+/-0.001mm
Surface quality	40/20
Surface quality	<2.5 lambda



Part No	Diameter (mm)	Dia tolerance(mm)	Spericity(mm)	Surface quality
BAL0010	1.0	+/-0.005	+/-0.002	40/20
BAL0030	3.0	+/-0.005	+/-0.002	40/20
BAL0040	4.0	+/-0.005	+/-0.002	40/20
BAL0050	5.0	+/-0.005	+/-0.002	40/20