

JUKA Optical Technology



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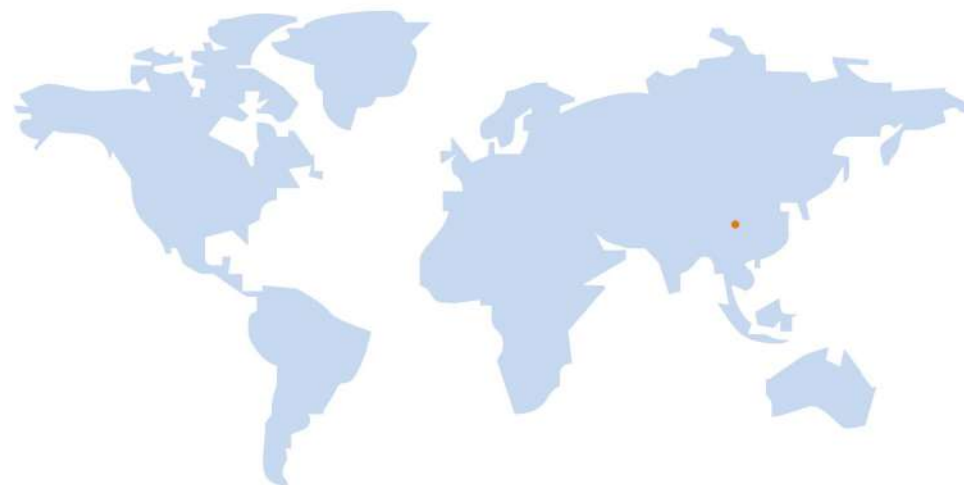
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About us

Chengdu JUKA Optical Technology Co., Ltd. is a professional manufacturer specialized in producing the high precise optical Lens, Prisms and optical Windows. Our company is located in the reputed world-wide optical processing center, Shuangliu, Chengdu, China. It's former is the processing department of the Institute of Optics and Electronics of the Chinese Academy of Science. The department was established in 1988.

Our company switched successfully to private enterprise from the state-owned enterprise in 2005. We have first-class processing and testing equipments. We have more than one hundred sets of production equipment. We have two sets of Zygo interferometer and a set of Veeco interferometer. But also it has a group of excellent designing engineers for optics, mechanism, electricity and operation staff with abundant experience.

The main products of the company are optical lens, windows, prisms, laser optical components, infrared optical components, coating optical components, wave plates, cuvette, optical gratings and other optical lenses, almost involving all the optical glass materials and crystal materials. 50% of our products are sold abroad and we provide service to domestic scientific research academy. We accept OEM service!

Our company has obtained import and export qualification certification. We still adhere to the concept of "Credit & Innovation, Pursuit of the Perfect"; We have passed the ISO9001-2008 quality certification. We master the American and European standard. On the concept of complete in products, high in quality, instant in response, professional in service, it provides the world with the first-class products and first-class service! As people-oriented, JUKA is striving for the goal of being the world standard optical elements storeroom.

Our Goal:

To be the standard optical store bar of the world, and the private Institute of Optoelectronic Sciences.

Our Mission:

To promote the standardization construction of optics of the world, and the development of high technology.

Our Responsibility:

To realize the value for customer, to create a successful stage for staffs, and to make JUKA bigger and stronger.

Our Spirit:

To realize self value by the attitude of diligence, cooperation, and sincerity.

Our Values:

Based on the Customer-centric approach and employee as the employee as the basic to change the world pattern of optics by using creative ideas.

Our Management Ideas:

Improve the processing level, change business strategy, provide customers with the best service in the shortest time.

Our Service Concept:

Quality wins reliance. Service makes brand

Factory display

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Factory display



Factory



Optical manufacture workshop



Coating workshop



Bonding workshop

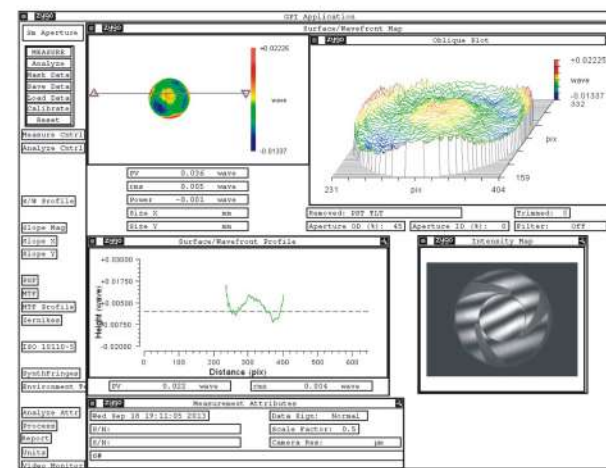
Detection Capability

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Detection capability



Interferometer detecting



Inspecting report of ZYGO

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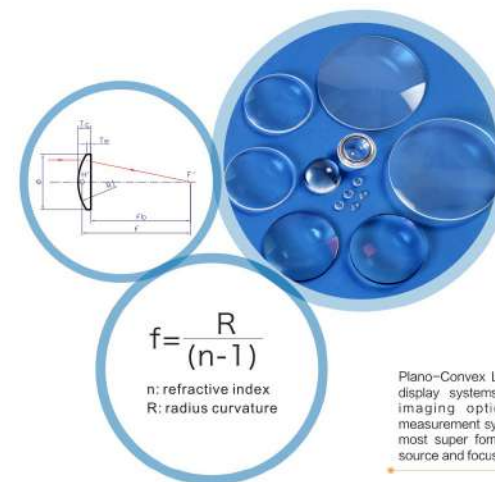
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Plano-Convex Lens



Plano-Convex Lens is widely used in optical display systems, projection optics systems, imaging optical systems, and laser measurement systems. This lens is almost the most super form for both collimating a point source and focusing collimated light.

技术参数

Material:	Optical Glass
Surface Flatness:	< $\lambda/5$ @ 633nm
Scratch/Dig:	< 40/20 (both sides)
Eccentricity:	≤ 1 arcmin
Focal Length Tolerance	$\pm 1\%$
Diameter Tolerance:	$\pm 0.00/-0.02$ mm
Thickness Tolerance:	± 0.05
Clear Aperture:	$\geq 95\%$ of diameter
Coating:	AR OR BBAR
Diameter Range:	5~260mm

Store room

Serial No.	Parts No.	Material	DIA	R1	R2	TC	F
1	S6P6	H-ZF13	6	4.71	∞	2.5	6.00
2	S6.7P6	LAK6	6.7	4.16	∞	4	6.00
3	S6P7.5	H-ZF13	6	5.89	∞	2.5	7.50
4	S5P7.5	H-ZF13	5	∞	5.89	1.9	7.50
5	S8.5P7.62	ZF10	8.5	∞	5.248	4.95	7.62

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Plano-Convex Lens

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Serial No.	Parts No.	Material	DIA	R1	R2	TC	F
6	S7P7.9	H-K9L	7	∞	4.1	3	7.90
7	S8P9UV	JGS1	8	4.13	∞	3.8	9.00
8	S6P9UV	JGS1	6	4.13	∞	2.5	9.00
9	S20R9.77	JGS1	20	19.54	∞	6	9.77
10	S6P9.8	H-ZF7LA	6	∞	7.834	1.7	9.80
11	S5P10	H-K9L	5	5.187	∞	1.64	10.00
12	S7P10.1	K9	7	∞	5.2	2.5	10.06
13	S7.7P10.6	H-K9L	7.7	5.5	∞	2.4	10.60
14	S5P12.5	JGS1	5	∞	5.74	3	12.50
15	S8P12.6	K9	8	∞	6.5	2.4	12.59
16	S10P14	H-ZF2	10	∞	9.362	3.5	14.00
17	S13.6P14.3	H-ZLAF55C	13.6	11.95	∞	2.9	14.30
18	S9P14.9	H-BAK7	9	∞	8.475	3	14.90
19	S15P15	H-ZF2	15	10.09	∞	5.5	15.00
20	S7.6P15	JGS1	7.6	∞	6.92	3.15	15.00
21	S5P15.5	H-LAF10L	5	12.226	∞	2.22	15.50
22	S12.8P17.7	H-ZK3	12.8	10.4	∞	5	17.70
23	S15P19.7	H-ZK11	15	12.58	∞	4.4	19.70
24	S12.7P20	H-K9L	12.7	10.3	∞	4	20.00
25	S10P20PCX	H-K9L	10	∞	10.34	3	20.00
26	SQ10P20.3	H-K9L	14.14	∞	10.5	4	20.30
27	S15P22.5	H-ZF2	15	15.12	∞	3.35	22.50
28	S9P23.9	H-LAF50A	9	12.345	∞	2	23.90
29	S10P24	H-K9L	10	12.417	∞	3	24.00
30	S12P25PCXF5	JGS1	12	∞	11.46	3.92	25.00
31	S25.4P25.3	H-K9L	25.4	∞	13.075	11.7	25.30
32	S12.7P25.4PCX	H-K9L	12.7	∞	13.13	3	25.40
33	S24P27.5	H-ZK11	24	17.576	∞	6	27.50
34	S20P27.7	H-LAK3	20	20.75	∞	3.8	27.70
35	S18.5P29.4	ZK9	18.5	∞	18.239	3.8	29.40
36	S25P32.6	ZK11	25	∞	20.8	5.5	32.57
37	S20P32.6-C	H-K9L	20	∞	16.82	4.5	32.60
38	S20P32.6	H-K9L	20	∞	16.82	4.5	32.60
39	S25.4P35	H-K9L	25.4	18.088	∞	7	35.00
40	S22P35.3	H-LAK2	22	∞	24.55	4	35.30
41	S25.5P36.3	LAK7	25.5	25.85	∞	5	36.26

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Plano-convex Lens

Serial No.	Parts No.	Material	DIA	R1	R2	TC	F
42	S30P36.5	K9	30	18.86	∞	9	36.50
43	S25P36.5	LAF10	25	28.77	∞	4.1	36.50
44	S12P37	H-ZK9A	12	22.891	∞	1.6	37.00
45	S6P38	H-K9L	6	19.68	∞	2	38.00
46	S12.7P38.1PCX	H-K9L	12.7	∞	19.69	3	38.10
47	S22P38.6	H-ZF3	22	∞	27.72	4.5	38.60
48	S20P40	H-K9L	20	20.679	∞	4.6	40.00
49	S10P40PCX	H-K9L	10	∞	20.67	3	40.00
50	S12P40PCXF5	JGS1	12	∞	18.34	3.13	40.00
51	S12.7P40.1	K9	12.7	20.73	∞	3	40.10
52	S25P40.4	ZK5	25	∞	24.66	5.4	40.35
53	S6P41.2	H-ZF7LA	6	32.81	∞	1.7	41.20
54	S24P41	ZK9	24	∞	25.59	6	41.25
55	S27P41.5	LAF10	27	32.66	∞	4.7	41.45
56	S20P42.7	H-K9L	20	∞	22.04	3.5	42.70
57	S32P43.9	K9	32	∞	22.7	9.3	43.92
58	S26P44	LAF10	26	∞	34.76	4	44.09
59	S18P45	H-K9L	18	∞	23	3	45.00
60	S19.5P45	ZK9	19.5	27.93	∞	2.8	45.02
61	S15P46.8	H-K9L	15	∞	24.2	2	46.80
62	S28P46.8	ZK9	28	∞	29.04	5.4	46.82
63	S40P47.1	JGS1	40	21.59	∞	25	47.10
64	S18P47.4	K9	18	∞	24.49	3.2	47.43
65	S17P49.5	K9	17	∞	25.06	4	48.49
66	S44P48.8	H-ZLAF50B	44	∞	39.2	8	48.80
67	S12.7P50	H-K9L	12.7	∞	26.25	2.5	50.00
68	S20P50	H-K9L	20	∞	25.88	3.23	50.00
69	S40P50	H-K9L	40	∞	25.95	11.4	50.00
70	S25P50PCXF5	JGS1	25	∞	22.92	5.84	50.00
71	S12.7P50.8PCX	H-K9L	12.7	∞	26.25	2.5	50.80
72	S21P51.2	K9	21	∞	26.4	4.2	51.17
73	S16P51.4	H-K9L	16	∞	26.533	2.85	51.40
74	S22.5P51.7	H-K9L	22.5	∞	26.71	4	51.68
75	S10.5P51.7	H-ZF2	10.5	34.78	∞	3.64	51.70
76	S22P52.3	H-ZK11	22	33.42	∞	12.4	52.30
77	S21.5P52.3	H-ZK11	21.5	33.42	∞	12.4	52.30

Plano-Convex Lens

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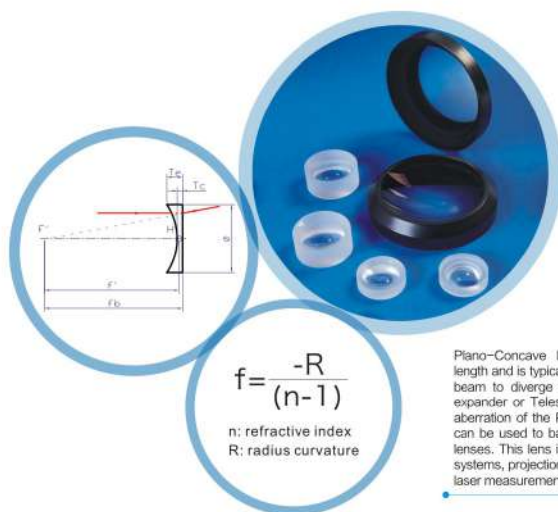
Serial No.	Parts No.	Material	DIA	R1	R2	TC	F
78	S8P54	H-ZF4	8	39.374	∞	3.1	54.00
79	S21P54.4	H-QK3L	21	26.53	∞	3.3	54.40
80	S17.4P56	H-ZK3	17.4	∞	32.96	3.6	55.95
81	S18P56	H-ZK3	18	∞	32.96	3.6	55.95
82	S30P56.2	H-LAK53A	30	∞	42.65	4.2	56.20
83	S18P56.4	H-ZF7LA	18	45.435	∞	3	56.40
84	S21P57.5	H-ZK11	21	∞	36.73	2.7	57.50
85	S16P58.9	JGS1	16	∞	27	3.2	58.90
86	S47P60.2	H-K9L	47	∞	31.124	12.6	60.20
87	S43P61.5	H-ZF13	43	∞	48.267	7	61.50
88	S16P62.5	H-K9L	16	32.29	∞	2.7	62.50
89	S30P64.5	H-K9L	30	33.328	∞	5	64.50
90	S11P68	H-F4	11	42.17	∞	4.1	68.00
91	S8P68	H-F4	8	42.17	∞	4.1	68.00
92	S20P69	JGS1	20	∞	31.688	3	69.00
93	S40P70	H-K9L	40	∞	36.31	7.5	70.00
94	S30P75	JGS1	30	34.28	∞	6	75.00
95	S25P75	H-K9L	25	∞	38.76	4.5	75.00
96	S25.4P76.5	H-K9L	25.4	∞	39.54	4.1	76.50
97	S30P77.7	H-ZF6	30	∞	58.641	4	77.70
98	S66P82.7	H-LAK59	65.98	∞	57.15	12.1	82.70
99	S48.4P84.2	H-K9L	48.4	∞	43.506	9.6	84.20
100	S48P84.2	H-K9L	48	∞	43.506	9.6	84.20
101	S30.5P91	H-ZK9	30.5	∞	56.49	4	91.05
102	S40P91.3	H-K9L	40	∞	47.16	6	91.30
103	S20P93	JGS1	20	∞	42.775	3.1	93.00
104	S50P99.5	H-K50	50	∞	52	9.1	99.50
105	S58.4P100	H-K9L	58.4	∞	51.75	15	100.00
106	S25P100PCXFS	JGS1	25	∞	45.85	3.79	100.00
107	S40P100.4	H-K9L	40	∞	51.88	6	100.40
108	S43P104.3	JGS1	42	∞	47.83	8	104.30
109	S45P113.2	H-ZF6	45	∞	86.5	5	113.20

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Plano-convex Lens

Serial No.	Parts No.	Material	DIA	R1	R2	TC	F
110	S16P123.6	H-K9L	16	∞	63.87	2.1	123.60
111	S30P125	JGS1	30	54.94	∞	6	125.00
112	S56P129.2	H-LAK7	56	∞	92.151	6	129.20
113	S36P133	H-K9L	36	68.668	∞	10	133.00
114	S30P147	JGS1	30	67.5	∞	3	147.00
115	S42P150.6	H-K9L	42	∞	77.81	4.9	150.60
116	S80HOLE25	H-K9L	80	∞	77.808	14	150.60
117	S42P150.6	H-K9L	42	∞	77.81	4.9	150.60
118	S52P151.2	H-BAF5	51.98	91.589	∞	6	151.20
119	S50P155	JGS1	50	∞	70.96	7.5	155.00
120	S46P159.8	K9	46	82.6	∞	5	159.83
121	S30P160	H-K9L	30	∞	82.632	5	160.00
122	S44P164.3	K9	44	84.85	∞	5	164.32
123	S100P185.7	H-K9L	100	∞	95.963	17	185.70
124	S74P193.5	H-K9L	74	∞	100	10	193.50
125	S25P200PCXFS	JGS1	25	∞	91.69	2.88	200.00
126	S25P203.7	ZF1	25	∞	131.911	3.7	203.70
127	S58P215	K9	58	110.976	∞	6	214.95
128	S30P248.2	JGS1	30	113.805	∞	5	248.20
129	S100P251	H-K9L	100	129.68	∞	12.53	251.00
130	S75P296	H-LAK10	75	∞	192.49	10	296.00
131	S100P301	H-K9L	100	155.621	∞	11.45	301.00
132	S80P321.7	H-ZF10	80	∞	221.61	9	321.70
133	S80P351.5	H-K9L	80	∞	181.65	7.5	351.50
134	S30P435FS	JGS1	30	∞	199.53	3	435.00
135	S30P490.8FS	JGS1	30	225	∞	3	490.80
136	S110P570.8	H-LAK7	110	∞	406.99	10	570.80
137	S30P699FS	JGS1	30	∞	320.375	3	699.00
138	S50P1100	H-K9L	50	∞	546.5	8	1100.00
139	S100P1995	H-ZF10	100	∞	919.11	12	1995.00
140	S100P2500	H-K9L	100	∞	1267.1	10	2500.00

Plano-Concave Lens



$$f = \frac{-R}{(n-1)}$$

n: refractive index
R: radius curvature

Plano-Concave Lens has a negative focal length and is typically used to cause a collimated beam to diverge as in a Galilean type beam expander or Telescope. Because the spherical aberration of the Plano-Concave is negative, it can be used to balance the aberration of other lenses. This lens is widely use in optical display systems, projection optics systems, imaging and laser measurement systems

Parametres

Material:	Optical Glass
Surface Flatness:	< λ/5 @ 633nm
Scratch/Dig:	< 40/20 (both sides)
Eccentricity:	≤ 1arcmin
Focal Length Tolerance:	< ± 1%
Diameter Tolerance:	< + 0.00/ - 0.02mm
Thickness Tolerance:	< ± 0.05
Clear Aperture:	≥ 95% of diameter
Coating:	AR OR BBAR
Coating:	GT-7 OR EQUIVALENT
Diameter Range:	5~260mm

Store room

Serial No.	Parts No.	Material	DIA	R1	R2	TC	F
1	S20N2902	H-K9L	20	∞	-1500	3	-2902.00
2	S20N1935	H-K9L	20	∞	-1000	3	-1935.00
3	S20N1548	H-K9L	20	∞	-800	3	-1548.00
4	S58N1161R	H-K9L	58	∞	-600	10	-1161.00

Serial No.	Parts No.	Material	DIA	R1	R2	TC	F
5	S100R1000	H-K9L	100	∞	-2000	12	-1000.00
6	S20N967	H-K9L	20	∞	-500	3	-967.00
7	S12.7R300	JGS1	12.7	-600	∞	3	-300.00
8	S33N300	H-K9L	33	∞	-155	2.5	-299.92
9	S12.7R250	JGS1	12.7	-500	∞	3	-250.00
10	S99N167	H-ZF11	99	-116.83	∞	3.5	-167.00
11	S46N155	JGS1	46	∞	-70.96	3	-155.00
12	S30.3N141.6	ZK2	30.3	∞	-82.6	2	-141.56
13	S42N100	H-K9L	42	∞	-51.87	2	-100.00
14	S25N100PCC	H-K9L	25	∞	-51.68	3.5	-100.00
15	S25N100PCCFS	JGS1	25	∞	-45.84	2.5	-100.00
16	S50N100PCC	H-K9L	50	∞	-51.68	5	-100.00
17	S12N82.5	H-K9L	12	∞	-42.63	1.5	-82.50
18	S42N75.9	JGS1	42	∞	-34.78	3	-75.90
19	S25.4R75	JGS1	25.4	-150	∞	3	-75.00
20	S20N72.7	JGS1	20	∞	-33.332	4	-72.70
21	S15N69.8	H-K9L	15	∞	-36.07	4.2	-69.80
22	S20N69.1	JGS1	20	∞	-31.688	3	-69.10
23	S12N58.9	C7978	12	-27	∞	2	-58.90
24	S58N58.4	ZBaF5	58	∞	-39.17	2	-58.37
25	S52N55	H-ZF7LA	52	-44.3	∞	3.485	-55.00
26	S22N52.2	H-K9L	22	∞	-27	2	-52.20
27	S25N50PCCFS	JGS1	25	∞	-22.92	2	-50.00
28	S25N50	JGS1	25	∞	-22.89	3	-50.00
29	S25.4N50	JGS1	25.4	∞	-23	2	-50.00
30	S22.5R45	SI	22.5	∞	-90	4.3	-45.00
31	S45N43.7	H-ZF7LA	44.98	-35.149	∞	2.5	-43.70
32	S52N43.7	H-ZF7LA	51.98	-35.149	∞	2	-43.70
33	S12N39.6	C7978	12	-18.155	∞	2	-39.60
34	S17N34.4	HW8850	17	∞	-18.42	1.5	-34.40
35	S10N30.1	JGS1	10	∞	-13.81	2	-30.10
36	S24N29.4	ZF2	24	∞	-19.8	4.1	-29.43
37	S20N28.9	H-ZF7LA	20	∞	-23.55	1.4	-28.90
38	S22N27	B270	21.9	∞	-14.12	4.1	-27.00
39	S22N27NEW	B270	21.9	∞	-14.12	4.1	-27.00
40	S12N26	H-K9L	12	∞	-13.4	1.4	-26.00

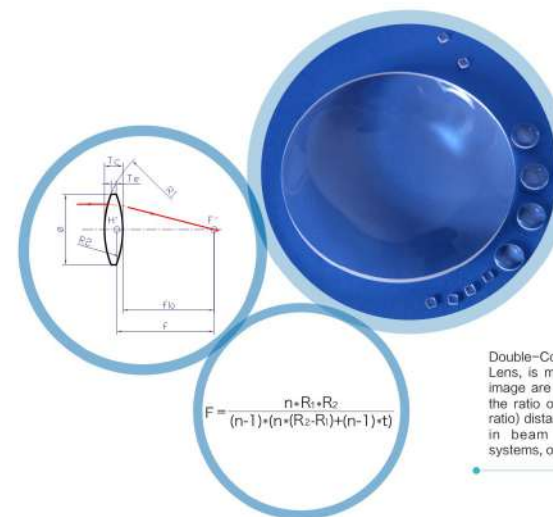
Plano-Concave Lens

Biconvex Lens

Serial No.	Parts No.	Material	DIA	R1	R2	TC	F
41	S32N23.2	H-ZF7LA	32	∞	-18.7	8.05	-23.20
42	S11N22.7	K9L	11	∞	-11.695	1	-22.65
43	S9N20.9	H-K9L	9	-10.8	∞	1.4	-20.90
44	S28N19.5	H-ZF3	28	∞	-13.964	14	-19.50
45	S25.4R19SI	SI	25.4	∞	-38.1	3.18	-19.00
46	S12.7R16.8	JG51	12.7	-33.624	∞	3.4	-16.80
47	S12N16.6	HWB850	12	∞	-8.3	3	-16.60
48	S19N16.5	H-K9L	19	∞	-8.5	2	-16.50
49	S19N16.5光片	H-K9L	19	∞	-8.5	2	-16.50
50	S30N15.6	H-ZF7LA	30	-12.706	∞	1.2	-15.60
51	S23N15.1	H-ZF7LA	23	-12.134	∞	1.2	-15.10
52	S10N13.3	C7978	10	-6.111	∞	2	-13.30
53	S19N12.7	ZF6	19	∞	-9.615	2	-12.70
54	S13N12.4	H-ZK2	13	-7.238	∞	3	-12.40
55	S14N11.6	H-LAF3	14	∞	-8.6	2	-11.60
56	S12N11.2	H-ZF7LA	12	∞	-9	2	-11.20
57	S3N5.9	K9	3	-3.05	∞	3	-5.90



PLANO-CONCAVE LENS



$$F = \frac{n \cdot R_1 \cdot R_2}{(n-1) \cdot (n \cdot (R_2 - R_1) + (n-1) \cdot t)}$$

Double-Convex Lens, also named Bi-Convex Lens, is most suitable where the object and image are on opposite sides of the lens and the ratio of the image and object (conjugate ratio) distances is between 0.2 to 5. It is used in beam expanders, Projection optics systems, optical viewers etc.

Parametres

Material:	Optical Glass
Surface Flatness:	< λ/5 @ 633nm
Scratch/Dig:	< 40/20 (both sides)
Eccentricity:	≤ 1arcmin
Focal Length Tolerance:	± 1%
Diameter Tolerance:	± 0.00/ - 0.02mm
Thickness Tolerance:	± 0.05
Clear Aperture:	≥ 95% of diameter
Coating:	AR OR BBAR
Diameter Range:	5~260mm

Store room

Serial No.	Parts No.	Material	DIA	R1	R2	TC	F
1	S5.4P3.5	H-ZF7LA	5.4	12.19	3.4	2.63	3.50
2	S10P5.6	ZF14	10	11.324	8.083	3.37	5.60
3	S8P6.7	H-ZLAF68B	8	6.11	104.23	2.2	6.70
4	S10P7	H-ZF7LA	10	10.49	10.49	3.5	7.00
5	S9P8	ZF11	9	11.5	7.5	9.6	8.00

Biconvex Lens

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Serial No.	Parts No.	Material	DIA	R1	R2	TC	F
6	S14P19	H-K9L	14	32.15	13.397	4.7	9.00
7	S10P10.3	H-K9L	10	9.817	9.817	4.6	10.30
8	S14P10.4	H-ZF62	14	28.64	12.972	6	10.40
9	S11P10.4	H-LAK53A	11	27.589	10.5	3.1	10.40
10	S9.5P10.5	JGS1	9.5	9.09	9.09	3.5	10.50
11	S14P11.1	H-LAF3	14	10.56	30.62	5	11.10
12	S11P12	H-K9L	11	11.695	11.695	4	12.00
13	S12.5P12.5	H-K9L	12.5	12.1	12.1	4.5	12.50
14	S12P12.6	ZF6	12	591.82	9.62	4	12.60
15	S6.8P13.1	K9	6.8	13.183	13.183	2	13.11
16	S11P13.3	JGS1	11	7.34	26.52	6	13.50
17	S10P13.6	H-LAK1	10	19.724	15.346	3.5	13.60
18	S14P13.8	H-LAK3	14	28.31	14.997	5.5	13.80
19	S12P13.8	ZF1	12	17.014	17.014	4.5	13.80
20	S8P13.9	H-ZBAF21	8	12.039	55.72	2.32	13.90
21	S9P13.9	H-LAK7	9	19	19	4	13.90
22	S16.6P13.9	H-QF50	16.6	17.76	13.135	5.53	13.90
23	S8P13.9	H-ZBAF21	8	12.039	55.72	2.32	13.90
24	S11.7P14.2	ZK3	11.7	38.965	10.284	3.3	14.16
25	S12.5P14.2	H-K51	12.5	14.011	14.011	4.6	14.20
26	S12P14.5	H-K9L	12	36.526	9.005	4.5	14.50
27	S10P15	H-K9L	10	64	9.29	3	15.00
28	S13P15.6	H-ZK2	13	11.06	42.875	5	15.60
29	S14P15.9	H-ZK3	14	31.35	12.702	3.9	15.86
30	S11P15.9	H-LAK7	11	13	77	4	15.90
31	S15P16.4	H-ZBAF21	15	28.81	19.099	3.68	16.40
32	S11P16.5	JGS1	11	73.3	9.067	5	16.50
33	S15P17	H-ZK11	15	22.92	21.15	3.73	17.00
34	S12P17.2	H-ZK9A	12	49.493	13.381	2.5	17.20
35	S14.2P17.4	ZK3	14.2	12.702	48	3.7	17.44
36	S14.8P17.6	ZK3	14.8	13.381	40.8	4	17.59
37	S15P17.8	H-ZK11	15	22.92	21.15	3.73	17.80
38	S19.8P17.9	K9	19.8	22.887	13.765	7.7	17.90
39	S16.5P18	ZK9	16.5	34.28	15.704	4.5	17.98
40	S14.8P18.1	Zk3	14.8	17.3	25.638	3.8	18.13
41	S22P18.8	H-LAK3	22	16.144	92.68	6.5	18.80

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Biconvex Lens

Serial No.	Parts No.	Material	DIA	R1	R2	TC	F
42	S11P18.9	H-ZK9A	11	18.11	31.47	3.1	18.90
43	S15.5P19.3	K9	15.5	26.12	15.136	4.5	19.28
44	S12P19.3	ZF6	12	19.04	57.53	3	19.30
45	S16P19.5	H-ZK9	16	14.369	67.975	4	19.48
46	S13.5P19.6	BaK8	13.5	70.63	13.062	3.6	19.55
47	S13.4P19.8	JGS1	13.417	15.812	19.59	4.3	19.80
48	AS30P20	H-F4	32	69.2	20.83	12.5	20.00
49	S15P20.5	H-ZK10L	15	17.192	43.96	4.69	20.50
50	S14P20.5	H-ZK10L	14	17.192	43.96	4.69	20.50
51	S16.5P20.9	ZK9	16.5	76.91	15.241	4	20.85
52	S16P20.9	H-ZK6	16	46.88	16.827	4	20.90
53	S16P21.1	H-LAF3B	16	21.59	54.45	3.5	21.10
54	S14.6P21.2	H-K9L	14.6	23.01	19.59	4.6	21.20
55	S18P21.8	H-ZK3	18	53.85	16.385	4.5	21.84
56	S12.6P22	H-K9L	12.6	22.28	22.28	2.5	22.00
57	S20P22.5	H-ZLAF68	20	38.55	38.55	5	22.50
58	S20P23	H-ZK10	20	15.62	145.273	7	23.00
59	S10P23.3	QK3	10	45.16	15	2.36	23.27
60	S21.5P23.8	H-ZK9	21.5	41.84	21.6	5.5	23.75
61	S20.6P23.9	H-F4	20.6	16.482	131.2071	4.91	23.90
62	S15P24.2	N-LAK12	15	42.87	25.66	4	24.20
63	S21.5P24.3	H-ZK9	21.5	70.18	18.65	5.5	24.33
64	S18P24.7	H-ZLAF50B	18	33.525	46.6	3.3	24.70
65	S12.7P25	K9	12.7	25.28	25.28	3.52	25.00
66	S20P25.2	H-LAK3	20	36.81	36.81	4	25.20
67	S13P25.5	H-K9L	13	50	17.498	3	25.50
68	S17.8P25.8	H-ZK50	17.8	34.848	26.993	5	25.80
69	S25P26.8光片	BAK2	25	32.884	23.621	7.8	26.80
70	S21P26.9	ZK9	21	41.8	26.4	5.5	26.91
71	S16P27	H-LAK53A	16	29.404	63.187	3	27.00
72	S18.5P27.2	H-LAF53	18.5	62.95	29.17	3.7	27.20
73	S22.5P27.3	ZK9	22.5	20	100	5.5	27.35
74	S15.2P27.4	H-ZK3	15.2	19.01	100	3	27.37
75	S13P27.5	H-LAK51	13	37.76	37.76	2.8	27.50
76	S25.5P27.7	ZBaF3	25.5	100	21.68	6.3	27.69
77	AS28P21	H-FK61	30	17.97	69.2	12	28.00

Biconvex Lens

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Serial No.	Parts No.	Material	DIA	R1	R2	TC	F
78	S18.6P28	H-LAF38	18.6	27.616	75.01	7.5	28.00
79	S32P28.1	H-LAF54	32	23.27	574.701	8	28.10
80	S17.2P28.3	H-QF50	17.2	37.24	28.39	3.8	28.30
81	S30ASEFL28.4	H-ZK11	30	37.2	39.72	8.2	28.40
82	S22P28.9	ZF6	22	159.673	24.077	6	28.90
83	S15P29.6	H-K9L	15	17.378	117.49	4.5	29.60
84	S26P29.7	H-LAF53	26	67.3	31.62	6.2	29.70
85	S12P30.2	H-ZK6	12	65.3	25.27	3.5	30.20
86	S16P31	H-LAK50A	16	44.957	35.739	3	31.00
87	S12.8P31.2	H-K51	12.8	45.39	25	2.8	31.20
88	S18.5P31.9	H-LAF53	18.5	24.21	1288.2	3.2	31.90
89	S33P32	K9	33	66.68	20.7	11.5	32.00
90	S14P32.2	H-LAF10	14	50	50	3	32.20
91	S20.9P32.7	H-K9L	20.9	21.16	77.39	5	32.70
92	S38P32.8	H-LAF1	38	60.05	32.137	18	32.80
93	S20P33.1	H-QK3L	20	21.003	60.873	8	33.10
94	S24P33.7	H-ZK6	24	108.85	24.85	6.85	33.70
95	S27P33.9	BAK4	27	45.92	29.89	6.8	33.85
96	S23P34.2	H-ZK7	23	312.6	22.13	4.5	34.20
97	S26P34.3	ZK7	26	128.53	24.66	6	34.26
98	S23P34.8	H-ZBAF21	23	38.092	71.062	3.7	34.80
99	S46ASEFL34.8	H-F4	46	32.83	95.72	15	34.80
100	S21P35	ZK7	21	263	23.17	4	34.92
101	S32P35	BAF1	32	146.62	21.57	9.03	35.00
102	S34.5P35.2	H-LAF53	34.5	85.51	36.06	8.6	35.20
103	S17.5P35.3	ZK9	17.5	80.17	29.72	3	35.32
104	S45P35.6	H-QF50	45	57.905	28.5	18	35.60
105	S10P35.8	C7980 1D	10	34.94	30.16	3	35.80
106	S15P36	H-LAK51	15	54.28	45.64	2.6	36.00
107	S30P36.2	H-ZK11	30	45.84	43.96	6.913	36.20
108	S26.2P36.3	H-K9L	26.2	36.05	36.05	8	36.30
109	S22P37.3	H-ZK11	22	248.9	26.12	5	37.30
110	S20P38.4	H-LAF53	20	59.98	52.97	3.8	38.40
111	S18P39.2	H-ZK6	18	27.42	190.11	3	39.20
112	S27P39.6	H-BAF8	27	241.5	26.42	5.5	39.60
113	S52P39.9	H-K50	51.9	44.3	44.3	20.185	39.90

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Biconvex Lens

Serial No.	Parts No.	Material	DIA	R1	R2	TC	F
114	S31P40	H-ZBAF16	31	34.78	107.15	5.85	40.00
115	S40P40	H-K9L	40	39.11	39.11	12.5	40.00
116	S20P21	K9	20	22.647	18.679	6.7	40.00
117	S25P40.3	H-K9L	25	40.74	40.74	5.4	40.30
118	S33.5P41.7	H-ZK11	33.5	54.089	49.5	7.5	41.70
119	S13P41.9	H-ZPK1	13	50	50	9.2	41.90
120	S20P42.3	JGS1	20	25.73	73.76	4.92	42.30
121	S30P42.9	H-ZK10	30	48.31	51.24	17.7	42.90
122	S24P43	H-K9L	24	30.35	78.471	5	43.00
123	S26P43.3	K9	26	101.86	27.93	5.8	43.26
124	S11P43.3	H-ZF2	11	57.84	57.84	2	43.30
125	S27P43.3	H-ZK10	27	52.917	52.917	5	43.30
126	S20P43.4	JGS1	20	30.316	54.91	4.8	43.40
127	S17.98P43.4	H-LAK54	17.98	41.69	131.83	2.2	43.40
128	S28.5P45	H-ZK10L	28.475	40.2311	87.47	5.64	45.00
129	S15P45.1	H-LAK10	15	57.844	57.844	4.5	45.10
130	S24P45.4	H-BAF8	24	44.06	77.62	5	45.40
131	S12P45.4	H-K9L	12	12.271	34.478	3.9	45.40
132	S41P45.8	H-K9L	41	26.01	210.63	15	45.80
133	S26P46	K9	26	109.65	29.79	6	46.00
134	S26.5P46.3	H-ZK6	26.5	56.02	56.02	4.7	46.30
135	S20P47	H-LAK10	20	60.63	60.63	3.5	47.00
136	S25P47.4	H-K9L	25	48.08	48.08	5.2	47.39
137	S38P47.5	H-ZF3	38	74.26	60.81	10	47.50
138	S40P47.5	H-ZBAF52	40	59.05	65	8.5	47.50
139	S16P48.3	H-ZK2	16	106.41	38.46	4	48.30
140	S36.5P48.4	H-K9L	36.5	48.519	48.519	8.7	48.42
141	S35.8P48.5	H-LAK52	35.8	52.5	101.378	8	48.50
142	S28P26.8	K9	28	30.13	23.01	9	48.70
143	S32P49.6	K9	32	122.46	31.77	8	49.60
144	S20P49.8	H-K9L	20	50.645	50.645	5	49.80
145	S40P50.3	K9	40	50	50	11	50.26
146	S28P52	H-ZF50	28	220.85	46.437	4.2	52.00
147	S20.5P52.8	H-ZK3	20.5	1536.2	31.7	4.4	52.80
148	S23.5P53	H-LAK3	23.5	46.88	229.1	4.2	53.00
149	S30P54	H-K9L	30	23.88	144.21	8.1	54.00

Biconvex Lens

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Serial No.	Parts No.	Material	DIA	R1	R2	TC	F
150	S32P57.3	H-ZK1	32	166.7	39.99	5.61	57.30
151	S28P58.2	K9	28	185.35	35.549	6	58.26
152	S30P58.7	H-K9L	30	59.7	59.7	5.6	58.70
153	S21P59.9	H-ZK11	21	48.91	170.61	3.3	59.90
154	S30P60	H-ZK10	30	51.24	122.46	14	60.00
155	S33P60.2	K9	33	65.61	57.02	7.2	60.24
156	S42P60.9	K9	42	61.38	61.38	9	60.91
157	S32P61	H-K9L	32	59.11	64.46	8.27	61.00
158	S30P61	QK3	29.55	524.8	31.41	5.8	61.00
159	S36P62.1	K9	36	63	63	6.4	62.09
160	S29P62.9	H-ZBAF21	29	51.591	370.793	5.3	62.90
161	S36P63.1	K9	36	63.97	63.97	7.1	63.14
162	S53P63.5	H-ZK9A	53	47.4	210.771	11.5	63.50
163	S35.2P63.7	H-K9L	35.2	64.6	64.6	7	63.70
164	S40P64.8	H-K9L	40	65.46	65.46	8.5	64.80
165	S49P65.3	H-ZBAF50	49	94.5293	75.2924	10.5	65.30
166	S25.2P65.4	K9	25.2	332.5	37.3	9.2	65.45
167	S44P67.1	H-ZF52A	44	105.68	117.49	10.2	67.10
168	S24P70	H-ZK11	24	193.2	57.544	5	70.00
169	S34P70.2	H-ZBAF21	34	100.46	100.46	5	70.20
170	S13P71.7	H-ZBAF52	13	95.72	95.72	2	71.70
171	S30P72.8	BAF5	30	56.597	194.673	3.6	72.80
172	S20P72.9	H-LAF53	20	65.31	320.6	3.2	72.90
173	S30P73.2	H-ZF1	30	83.211	108.398	3.5	73.20
174	S25P73.7	C7980 1D	25	51.338	95.94	5	73.70
175	S30P74.3	JGS1	30	53.12	90.95	7	74.30
176	S20P76	H-ZK2	20.00	88.04	88.04	3	76.00
177	S29P76	H-K9L	29	45.352	282.319	4.34	76.00
178	S48P77.6	H-ZK11	48	97.499	97.499	8.3	77.60
179	S30P80.7	H-K9L	30	82.632	82.632	4.5	80.70
180	S48P81	Zf13	48	72.0634	517.715	7	81.00
181	S20P81.8	JGS1	20	74.34	74.34	4.5	81.80
182	S33P82.5	K9	33	126.77	63.24	6	82.53
183	S42P83.5	H-QK3L	42	79.992	79.992	8.76	83.50
184	S25P83.9	JGS1	25	106.17	59.57	4	83.90
185	S15P31.6	H-ZLAF55A	15	293.951	28.847	3	84.20

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Biconvex Lens

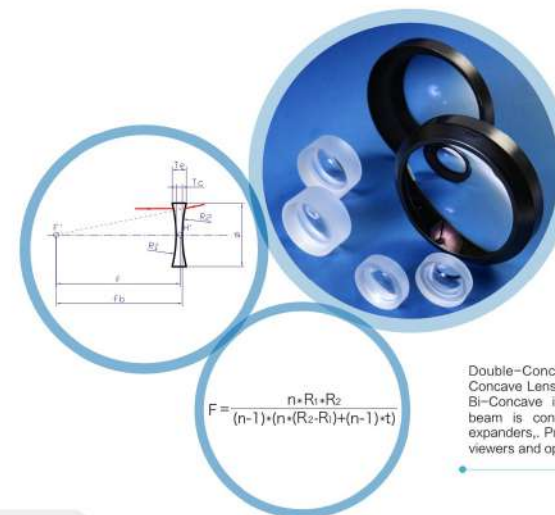
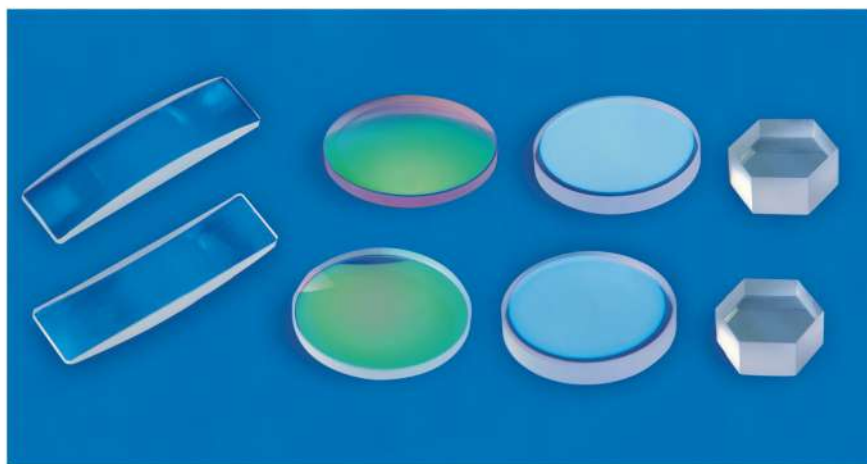
Serial No.	Parts No.	Material	DIA	R1	R2	TC	F
186	S42P84.5	JGS1	42	76.15	76.15	8	84.50
187	S68P84.9	H-FK61	68	66.98	103.8	18	84.90
188	S46P87.2	K9	46	115.35	72.11	8.5	87.20
189	S59P91	H-K9L	59	91.69	91.69	13.5	91.00
190	S30P92.6	JGS1	30	66.37	113.805	7	92.60
191	S57.5P92.9	H-BAK2	57.5	118.163	84.129	11.8	92.90
192	S42.9P98.4	H-K9L	42.9	60.78	300.07	6.29	98.40
193	S50P99.2	JGS1	50	70.96	120.371	11	99.20
194	S25P102.3	H-ZF3	25	132	163.6	3.5	102.30
195	S37P103	H-ZF6	37	154.13	154.13	6	103.00
196	S90P104.5	H-K9L	90	103.74	103.74	24.1	104.50
197	S82P106	H-K9L	82	118.81	96.37	17.94	106.00
198	S28.6P108.9	H-K9L	28.55	111.607	111.607	5.588	108.90
199	S72.5P110	H-ZBAF3	72.5	142.04	142.04	12	110.00
200	S72P110	H-ZBAF3	72	142.04	142.04	12	110.00
201	S25P111.3	H-ZF10	25	280	105	4	111.30
202	S30P113.8	JGS1	30	132.5	85.44	5.93	113.80
203	S30P117	H-ZK11	30	112.98	216.519	4.5	117.00
204	S82P121.7	H-K9L	81.97	250.74	82.125	16.44	121.70
205	S52P133.7	K9	52	246.6	94.84	7.2	133.63
206	S52P134.3	BaK2	52	210.9	109.4	6.3	134.33
207	S58P136.7	QK3	58	86.64	280.5	7.6	136.72
208	S70P137	H-K9L	70	148.615	131.02	14	137.00
209	S88.5P139.3	H-ZK10L	88.5	170.61	170.61	14.7	139.30
210	S46P141.3	K9	46	274.2	98.82	6	141.33
211	S44P142.3	H-F1	44	170.61	170.61	5.9	142.30
212	S46P146	BAK7	46	86.21	2249	5.2	146.06
213	S44P148.7	H-K9L	44	86.66	663.7	4.91	148.70
214	S38.5P151	H-K9L	38.5	155.34	155.34	4.6	151.00
215	S51P157.8	H-FK61	51	177.8	138.33	7.5	157.80
215	S51P157.8	H-FK61	51	177.8	138.33	7.5	157.80
216	S54P171.9	BAK7	54	101.86	2377	6.5	171.90
217	S102P175.2	H-K9L	102	242.7	140.6	19	175.20
218	S102P175.2	H-K9L	102	242.7	140.6	19	175.20
219	S81P177.6	H-K9L	81	181.59	181.59	11.5	177.60
220	S53P181.7	K10	53	323.6	131.83	6.7	181.68

Biconvex Lens

Biconcave Lens

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Serial No.	Parts No.	Material	DIA	R1	R2	TC	F
221	S72P190.6	K9	72	128.82	405.5	10	190.57
222	S69P191.3	H-K9L	69	120.417	540.479	7.73	191.30
223	S47P193.2	H-K50	47	201	201	5	193.20
224	S68P205.5	H-F4	68	252.5	252.5	12	205.50
225	S68P205.5NEW	F4	68	252.5	252.5	12	205.50
226	S42P210.6	H-K9L	42	514	137.6	5	210.58
227	S65P212	H-K9L	65	705.555	128.2	12.44	212.00
228	S116P229	H-K9L	116	233.9	233.9	17.1	229.00
229	S50P244FS1	JGS1	50	132	732	4.5	244.00
230	S50P244FS1	JGS1	50	132	732	4.5	244.00
231	S52P246.2	H-K9L	52	270.4	238.508	6	246.20
232	S81P275	ZK9	81	186.21	2040	9.35	275.48
233	S75P288	H-K9L	75	910.46	176.93	10	288.00
234	S85P300	JGS1	85	713.392	165.442	12	300.00
235	S50P300UV	JGS1	50	165	732	4.5	300.00
236	S50P300UV	JGS1	50	165	732	4.5	300.00
237	S59P307.5	H-K9L	59	391	266.16	7	307.50
238	S50P490	JGS1	50	275.0058	1229.995	4.5	490.00
239	S85P500	JGS1	85	1209.275	275.253	12	500.00
240	S83.5P503.8	K9	83.5	293.8	2249	7.5	503.81



$$F = \frac{n \cdot R_1 + R_2}{(n-1) \cdot (n \cdot (R_2 - R_1) + (n-1) \cdot t)}$$

Double-Concave Lens, also named Bi-Concave Lens, is used to divergent light. The Bi-Concave is best used when the input beam is converging. It is used in beam expanders, Projection optics systems, optical viewers and optical character readers etc.

Parametres

Material:	Optical Glass
Surface Flatness:	< λ/5 @ 633nm
Scratch/Dig:	< 40/20 (both sides)
Eccentricity:	≤ 1arcmin
Focal Length Tolerance:	± 1%
Diameter Tolerance:	< + 0.00/ - 0.02mm
Thickness Tolerance:	< ± 0.05
Clear Aperture:	≥ 95% of diameter
Coating:	AR OR BBAR
Blacking edge:	GT-7 OR EQUIVALENT
Diameter Range:	5~260mm

Store room

Serial No.	Parts No.	Material	DIA	R1	R2	TC	F
1	S41N210.6	Zf1	41	-691.8	-170.22	2.8	-210.60
2	S54N197.1	Zf4	54	-340.4	-248.9	2.5	-197.10
3	S65N190	Zf1	65	-516.37	-162.55	5.49	-190.28
4	S90N152.3	H-K9L	90	-102.45	-346.7	6	-152.30
5	S29.5N143.3	BaK2	29.5	-2249	-80.17	2	-143.32
6	S30.5N136.7	BaK2	30.5	-2249	-76.38	2	-136.76
7	S20N128.3	H-K9L	20	-298.98	-85.4	2	-128.31
8	S25N100BCCFS	JGS1	25	-92.08	-92.08	2.5	-100.00
9	S12.5N99	H-K9L	12.5	-102.5	-102.5	1.5	-98.92
10	S68N92.3	H-ZF2	68	-83.49	-249	5.5	-92.30

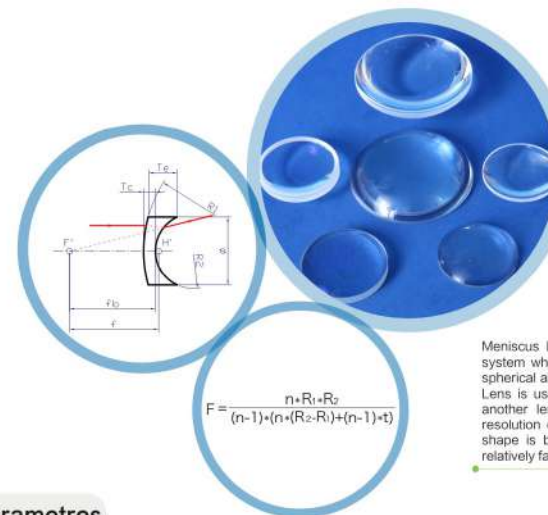
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Biconcave Lens

Biconcave Lens

Meniscus Lens

Serial No.	Parts No.	Material	DIA	R1	R2	TC	F
11	S72N80	H-F4	72	-169.92	-71.8	12	-80.00
12	S72N80NEW	H-F4	72	-169.92	-71.8	12	-80.00
13	S58N77.8	H-ZF3	58	-73.79	-234	4	-77.80
14	S30N77	JGS1	30	-70.96	-70.96	3	-77.00
15	S65N67.5	ZBaF3	65	-295.61	-52.36	2.5	-67.53
16	S68N65.6	F13	68	-2465.0	-41.761	3	-65.60
17	S27N62.7	ZK9	27	-148.8	-52.864	1.45	-62.70
18	S60N61.3	F4	60	-74.901	-78.424	1	-61.33
19	S21N51	H-ZF6	21	-77.39	-77.39	2.5	-51.00
20	S25N50BCC	H-K9L	25	-52.1	-52.1	3.5	-50.00
21	S44N45.8	ZF7L	44	-152.79	-49.036	3	-45.80
22	S14N45	H-ZF2	14	-36.17	-192.31	3	-45.00
23	S15N45	H-ZF2	15	-36.17	-192.31	2	-45.00
24	S21N42.8	H-ZF7LA	21	-42.6	-184.33	4.064	-42.80
25	S28.6N35	H-ZK21	28.6	-280.79	-23.799	3	-35.00
26	S13N33.5	H-ZF6	13	-30.567	-153.79	3	-33.50
27	S14N31.6	H-ZF6	14	-34.69	-79.62	3	-31.60
28	S13.5N31.6	H-ZF6	13.5	-34.69	-79.62	1.5	-31.60
29	S14N27	H-LAK53A	14	-31.693	-58.811	1.5	-27.00
30	S25N25.4	H-LAF4	25	-38.416	-38.416	8.4	-25.40
31	S25N25	H-F4	25	-36.73	-29.17	3	-25.00
32	S13N24.4	H-LAK7	13	-48.91	-27.72	2	-24.40
33	S12N24BCC	H-K9L	12	-25.14	-25.14	1.26	-24.00
34	S17.3N23.9	H-LAF50B	17.3	-37.24	-37.24	3	-23.90
35	S12N23.4	BAF3	12	-19.543	-47.1	2	-23.44
36	S14N19	H-K9L	14	-27.94	-32.15	2	-19.00
37	S24N18.9	H-K9L	24	-11.092	-89.95	1	-18.90
38	S22N18.7	H-ZF7LA	22	-255.3	-16.218	9	-18.70
39	S20N16.7	H-ZF52A	20	-51.591	-21.003	1.9	-16.70
40	S15N16.4SZ	H-ZF6	15	-22.96	-27.72	2.8	-16.40
41	S15N16.4	H-ZF6	15	-27.542	-23.605	7.23	-16.40
42	S32N15.7	H-ZF3	32	-11.83	-284	2	-15.70
43	S15N14.8	H-F3	15	-50.54	-11.31	1.5	-14.80
44	S16N14.6	H-ZF3	16	-30.62	-15.776	3	-14.60
45	S13N11.3	H-ZK2	13	-12.12	-15.69	1	-11.30
46	S16.7N11	H-LAF50B	16.7	-16.82	-17.76	1.8	-11.00
47	S10N10.4	H-K9L	10	-11.092	-11.092	2	-10.40
48	S10N9.8	JGS1	10	-9.247	-9.247	1.25	-9.80
49	S5N9.8	H-ZF3	5	-14.377	-14.377	3	-9.80
50	S8N7.4	H-ZF6	8	-7.2	-30.54	5	-7.40
51	S12N7.4	ZF11	12	-12.622	-12.622	3	-7.40
52	S15N7.4	N-SF6	15	-13.24	-12.05	2	-7.40
53	S11N7.1	H-ZF7LA	11	-11.883	-11.883	2	-7.10
54	S8N7.1	ZF7L	8	-11.883	-11.883	2	-7.10
55	S8N7.1NEW	H-ZF7LA	8	-11.883	-11.883	5	-7.10
56	S12N5.4	H-ZF6	12	-5.861	-18.267		-5.40



Meniscus Lens can increase the NA of the system while only adding slightly to the total spherical aberrations. The Negative Meniscus Lens is used to increase the focal length of another lens while maintaining the angular resolution of the optical assembly. This lens shape is best used when one conjugate is relatively far from the lens.

$$F = \frac{n \cdot R_1 \cdot R_2}{(n-1) \cdot (n \cdot (R_2 - R_1) + (n-1) \cdot t)}$$

Parametres

Material:	Optical Glass
Surface Flatness:	< $\lambda/5$ @ 633nm
Scratch/Dig:	< 40/20 (both sides)
Eccentricity:	≤ 1 arcmin
Focal Length Tolerance:	< $\pm 1\%$
Diameter Tolerance:	< + 0.00 / - 0.02mm
Thickness Tolerance:	< ± 0.05
Clear Aperture:	$\geq 95\%$ of diameter
Coating:	AR OR BBAR
Blackening edge:	GT-7 OR EQUIVALENT
Diameter Range:	5-260mm

Store room

Positive meniscus lens							
Serial No.	Parts No.	Material	DIA	R1	R2	TC	F
1	S8.6P8.7	ZnSe	8.6	-50.58	11.22	1.4	8.70
2	S8P8.9	H-LAF3B	8	6.28	-95.1	2.2	8.90
3	S10P10.1	K9	10	5.19	-500	6.2	10.10
4	S9P13.5	H-ZF62	9	9.911	-38.55	2.1	13.80
5	S12P18.7	H-LAF50A	12	-132.74	13.176	3.3	18.70
6	S14P20.1	H-ZLAF75A	14	13.804	-51.24	2.4	20.10
7	S13P23.2	H-ZK3	13	-21.23	8.088	4	23.20

Meniscus Lens

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Serial No.	Parts No.	Material	DIA	R1	R2	TC	F
8	S12P23.7	H-ZK9	12	11.57	-48.93	2.86	23.70
9	S9P23.8	H-ZF62	9	-13.37	10.59	7.64	23.80
10	S13P24.9	S-LAM7	13	-170	16.94393	2.5	24.90
11	S16P25.4	H-LAF53	16	-33.57	12.823	4.8	25.40
12	S8P26	H-ZBAF5	8	-19.724	9.7	2.27	26.00
13	S12P27	H-ZBAF21	12	15.374	-65.111	3	27.00
14	S15.2P27.7	H-ZK3	15.2	-231.9	15.3	2.8	27.67
15	S20P30.1	H-LAF53	20	16.482	-55.46	4	30.10
16	S15N30.3	H-ZF6	15	119	-18.95	3.86	30.30
17	S16P31.2	H-ZLAF52	16	18.67	-67.508	3	31.20
18	S15P32.2	H-LAF3B	15	-145.88	20.73	2.8	32.20
19	S15P32.3	H-K9L	15	9.26	-18.155	3.5	32.30
20	S15P32.3-C	H-K9L	15	9.26	-18.155	3.5	32.30
21	S11P35.5	H-K9L	11	16.57	-156.37	3	35.50
22	S30P35.9	H-LAF53	30	-52.24	18.75	7.5	35.90
23	S16P36.4	H-ZK6	16	13.996	-34.67	3.5	36.40
24	S15.5P36.5	LAF10	15.5	-163.59	24.66	2.7	36.52
25	S22P36.7	H-BAK4	22	17.497	-114.524	4.7	36.70
26	S23P38	H-LAF53	23	-36.22	16.788	5	38.00
27	S15P38.1	H-ZLAF55A	15	-293.95	28.847	3	38.10
28	S15P38	H-ZLAF55A	15	-293.95	28.847	3	38.10
29	S19P39.4	H-ZK9A	19	13.895	-29.047	3.6	39.40
30	S24P39.6	H-ZF7LA	24	-30.296	17.819	10	39.60
31	S7P41.4	H-K9L	7	-4.6	4.6	3	41.40
32	S26P43.2	N-SF6	26	32.15	-176.4	4	43.20
33	S26P44.4	H-LAK3	26	26.79	-127.94	4.2	44.40
34	S22.5P45	H-BAK4	22.5	24.619	-1735	5	45.00
35	S28P46	H-ZK9	28	21.82	-83.35	5.5	46.07
36	S19.4P47.3	ZK7	19.4	-43.05	17.783	3	47.29
37	S18N48.2	H-ZF13	18	-26.993	96.302	1.5	48.20
38	S25.5P48.6	ZK9	25.5	-89.26	22.96	4.4	48.59
39	S14N49.3	H-ZF7LA	14	-5.5	11.324	9.54	49.30
40	S14.4N49.3	H-ZF7LA	14.4	-5.5	11.324	9.54	49.30
41	S8.6P49.4	H-LAF50A	8.6	-3.5	6.4	8	49.40
42	S26P49.6	K9	26	-331.7	23.93	6	49.58
43	S27P49.8	H-ZK11	27	23.07	-77.04	4.8	49.80
44	S14P50.3	H-K9L	14	-14.622	10.36	5	50.30
45	S14P50.31	H-K9L	14	-14.622	10.36	5	50.30

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Meniscus Lens

Serial No.	Parts No.	Material	DIA	R1	R2	TC	F
46	S20P53.3	H-ZK10	20	18.054	-35.405	5	53.30
47	S22P54.7	H-LAK3	22	21.04	-39.81	3.8	54.70
48	S28P54.7	H-ZBAF21	28	37.865	-862.869	3.5	54.70
49	S27P59.8	H-LAK1	27	26.24	-74.99	4.1	59.80
50	S23P61.5	H-LAF53	23	28.64	-74.64	2.9	61.50
51	S23P62.3	BAF5	23	32.38	-219.7	3	62.30
52	S27P63.7	H-ZK10	27	-1541.9	38.688	5	63.70
53	S22P63.8	H-ZBAF3	22	38.9	-498.9	2.7	63.80
54	S30P65.2	K9L	30	18.8	-37.95	5.9	65.20
55	S35P69.2	H-ZBAF3	35	-212.35	38.15	10	69.20
56	S18.98P69.8	H-LAF10L	18.98	21.38	-32.36	3.6	69.80
57	S49P70.6	H-ZK11	49	-104.23	32.81	11.4	70.60
58	S42P71.8	F2	42	28.5	-71.3	8.8	71.80
59	S33.5N71.9	H-ZF6	33.5	213.8	-46.03	2.97	71.90
60	S22.6P74	H-ZF7LA	22.6	-28.91	22.44	9.88	74.00
61	S16P74.8	H-LAK4	16	-39.63	22.7	4	74.80
62	S32P75.6	ZK9	32	-42.85	23.99	8	75.58
63	S16N78.1	H-ZLAF68	16	-7.738	11.251	4.8	78.10
64	S27P80	H-ZK10	27	-311.79	43.279	5	80.00
65	S25P80.3	H-K9L	25	17.3	-27	4.55	80.30
66	S20P800.3	H-ZLAF66	20	21.099	-28.09	5	80.30
67	S40P81.3	H-ZBAF3	40	52.2	-2148	12.1	81.30
68	S17P81.4	ZK9	17	11.695	-11.695	7	81.40
69	S42P82.8	H-ZBAF20	42	32.137	-59.02	14	82.80
70	S44P88.7	H-QK3L	44	37.026	-239.298	8	88.70
71	S33P95.1	H-BAK4	33	23.4	-38.2	6.2	95.14
72	S25.4P100M	H-K9L	25.4	32.1	-82.2	3.6	100.00
73	S25.4P100MFS	JGS1	25.4	31	-91.2	4	100.00
74	S60P102	H-K9L	60	39.72	-142.41	13.8	102.00
75	S20P106.8	H-ZK7	20	-778	60.67	2.9	106.80
76	S23.4P109.6	H-ZK1	23.4	46.48	-176.06	4.56	109.60
77	S45P136.7	H-ZF6	45	-87.9	48.91	5	136.70
78	S22P149.5	H-K9L	22	-1130.0	72.44	5	149.50
79	S41P173.6	K9	41	78.52	-622.3	4.1	173.57
80	S60.3P198	H-K9L	60.274	66.37	-178.486	10.66	198.00
81	S25.4P200M	H-K9L	25.4	66.2	-182.2	2.8	200.00
82	S25.4P200MFS	JGS1	25.4	64.2	-209.8	2.9	200.00
83	S74P201	H-ZF2	74	65.851	-121.34	9	201.00

Meniscus Lens

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Serial No.	Parts No.	Material	DIA	R1	R2	TC	F
84	S34P213.7	H-ZK9B	34	-75	49	4.5	213.70
85	S8N217	H-ZF52A	8	-9.5	12.05	4.2	217.00
86	S43.2P221.7	H-ZF6	43.2	51.2	-71.28	4	221.70
87	S18P222.5	K9	18	-51.52	36.4	3.5	222.45
88	S10.8P226.1	JGS1	10.802	7.69	-7.283	3	226.10
89	S33P231.7	K9	33	-85.11	50.35	3.1	231.74
90	S58P265.1	K9	58	107.15	-477.7	7	265.10
91	S48.5P265.6	K9	48.5	-150.31	72.44	4.5	265.57
92	S36P277.5	K9L	36	64.9	-116.41	3.6	277.48
93	S14N282.2	H-ZLAF68	14	10.16	-6.871	6.4	282.20
94	S25.4P300M	H-K9L	25.4	100.9	-288.2	2.5	300.00
95	S41P300.6	K9	41	-111.94	65.77	3.7	300.61
96	S23.48P308.2	H-LAK59	23.48	102.33	-194.98	2.5	308.20
97	S40P309.3	K9	40	-62.37	45.71	3.5	309.27
98	S60.3P331	H-K9L	60.274	122.987	-424.51	10.66	331.00
99	S50.5P352.6	K9	50.5	-145.88	81.75	4	352.64
100	S106P362.4	H-K9L	106	110.1	-257.8	11.3	362.40
101	S81P425	K9	81	-2773	203.7	9.96	424.84
102	S76P437	H-ZBAF21	76	157.04	-306.972	6	437.00
103	S59N544	F4	59	-266.16	1267.1	5	544.00
104	S104P567.4	H-LAK7	104	-320.37	181.59	12	567.40
105	S42P621	H-QK3L	42	35.471	-34.948	14.1	621.00
106	S30P194161	H-K9L	30	261.49	-261.49	2	194161.00

Negative meniscus lens

1	S15N26220	H-K9L	15	-126.51	128.82	3.25	-26220.0
2	S30JG53	JGS3	33.5	85	-82	3	-7391.00
3	S10N918	C7980 1D	10	-11.34	12.3	2	-918.00
4	S30N757	JGS1	30	-60.05	73.76	3	-757.00
5	S25N735.5	C7980 1D	25	-37.93	43.8	3	-735.50
6	S82N669	H-F4	81.97	78.274	-64.257	4.96	-669.00
7	S25N635.2	JGS1	25	-47.42	57.84	3.2	-635.20
8	S116N495	H-F4	116	-133.1	238.3	5	-495.00
9	S68N479NEW	F4	68	-70.04	97.66	12	-479.00
10	S68N479	H-F4	68	-70.04	97.66	12	-479.00
11	S30N426	JGS1	30	-71.3	113.805	3	-426.00
12	S30N422	ZF7L	30	-122.46	193.61	3	-422.00
13	S20N363	JGS1	20	-52.204	77.39	3	-363.00
14	S30N354	JGS1	30	-66.37	113.805	3	-354.00

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Meniscus Lens

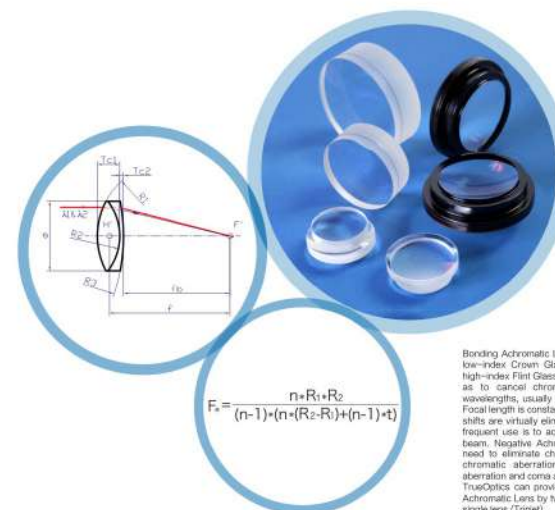
Serial No.	Parts No.	Material	DIA	R1	R2	TC	F
15	S30N335	C7980 #D	30	112.89	-64.15	5.06	-335.00
16	S30N313	JGS1	30	-82.632	196.79	3	-313.00
17	S102N305.8	F2	102	-141.9	591.6	4.8	-305.80
18	S25.4N300	H-K9L	25.4	250	-95.1	3	-300.00
19	S41N290.5	K9	41	67.1	-119.12	3.7	-290.52
20	S30N286	JGS1	30	-53.12	90.95	3	-286.00
21	S52.5N264.3	QK3	52.5	425.263	-98.63	3	-264.26
22	S12N224.6	H-ZF2	12	7.73	-6.37	2.55	-224.60
23	S72N217.7	H-ZF2	72	-96.37	288.97	6	-217.70
24	S88N217.7	H-ZF2	88	-96.37	288.97	6	-217.70
25	S30.5N210.8	QK3	30.5	437	-80.17	2.2	-210.82
26	S22N207	H-ZF13	21.98	-23.541	32.3153	3.65	-207.00
27	S29.5N201.8	QK3	29.5	437	-80.17	2.2	-201.85
28	S25.4N200M	H-K9L	25.4	100	-50.2	3	-200.00
29	S25.4N200MFS	JGS1	25.4	150	-56.6	3.5	-200.00
30	S33.5N199.1	QK3	33.5	415.5	-78.52	2.1	-199.10
31	S50N188	ZF11	50	-96.83	373.385	3.73	-188.00
32	S35N185.6	F6	35	1042.3	-104.23	2.8	-185.57
33	S28N181.6	BAK7	28	73.45	-42.5	2	-181.60
34	S30N179	JGS1	30	-37.24	69.82	3	-179.00
35	S34N173.8	K9	34	125.03	-51.88	2.5	-173.75
36	S18N173.5	H-K9L	18	41.11	-27.72	2	-173.51
37	S32.5N158.4	BaK7	32.5	49.09	-31.19	2.5	-158.38
38	S30N150	H-K9L	30	153.8	-50.3	10	-150.00
39	S25.4N150M	H-K9L	25.4	100	-43.1	3	-150.00
40	S58N134.3	H-ZF2	58	-33.57	56.621	5	-134.30
41	S32N132	H-ZK1	32	-31.02	55.72	4.56	-132.00
42	S30.5N131.3	K9	30.5	219.167	-51.52	3	-131.25
43	S17N129	H-ZLAF68	17	-8.78	12.05	5	-129.00
44	S20.5N124.9	BAK2	20.5	66.37	-33.19	1.5	-124.95
45	S100.4N116	H-QF1	100.4	496.6	-56.1	3	-116.00
46	S16N115.3	H-K9L	16	133.032	-40.9	2.5	-115.34
47	S40N110	H-BAK6	40	51.22	-26.92	6	-110.00
48	S40N105.4	H-ZF4	40	-65	435.85	4	-105.40
49	S22.5N104.2	ZK1	22.5	1836.5	-57.41	2	-104.23
50	S31.5N100	N-KZFS8	31.5	-62.907	494.86	2.3	-100.00
51	S25.4N100MFS	JGS1	25.4	150	-35	3	-100.00
52	S68N89.5	H-F4	68	-43.13	198.4	3	-89.50

Meniscus Lens

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Serial No.	Parts No.	Material	DIA	R1	R2	TC	F
53	S68N89.5NEW	F4	68	-43.13	198.4	3	-89.50
54	S72N84.8	ZF7L	72	569.074	-60.8405	3	-84.80
55	S15N84.2	H-ZLAF56A	15	-8.472	12.791	6.1	-84.20
56	S17.4N83.7	H-QK3	17.4	59.93	-23.94	2.6	-83.76
57	S13N80.1	H-F4	13	-42.88	318.9	2	-80.10
58	S18N79.1	K9	18	53.83	-22.96	1.8	-79.11
59	S30N79	H-ZF2	30	-34.43	100.23	2.1	-79.00
60	S16N78.1	H-ZLAF68	16	-7.738	11.251	4.8	-78.10
61	S38.8N78.1	H-K9L	38.811	571.5	-37.566	5.08	-78.10
62	S16N77.7	H-LAK11	16	-7.738	10.98	4	-77.70
63	S30N73.6	H-ZF2	30	-19.08	37.56	9.94	-73.60
64	S46N68.8	H-ZLAF75A	46	-26.36	50	5	-68.80
65	S24N65.4	ZF3	24	88.368	-30.35	2	-65.40
66	S118N63.8R	H-K9L	118	105.93	-71.61	6.6	-63.80
67	S22N59.6	ZF4	22	82.632	-27.399	4	-59.60
68	S25.4N59.1	F3	25.375	92.1	-25.679	4.064	-59.10
69	S9N55.1	H-F4	9	-20.828	55.85	2.5	-55.10
70	S13N52.6	H-ZF52A	13	-25	67.46	10	-52.60
71	S13N48.2	H-F4	13	-17.498	43.536	1.5	-48.20
72	S26N45.6	H-ZF3	26	-15.46	37.216	10	-45.60
73	S20N40	ZF2	20	-18.679	61.313	1.8	-40.00
74	S31N38.8	H-ZLAF55C	31	27	-14.357	1.5	-38.80
75	S28N38.7	H-K9L	28	587	-19.3	2	-38.70
76	S12.5N35.7	ZF7L	12.5	-21.669	91.324	2	-35.70
77	S21N33.5	N-K5	21	17.74	-7.953	5	-33.50
78	S21N33	N-K5	21	17.74	-7.953	5	-33.00
79	S20N32.8	F5	20	-13.765	47.139	4.3	-32.80
80	S15N30.3	H-ZF6	15	119	-18.95	3.86	-30.30
81	S27N28.4	H-ZK9A	27	70.533	-14.011	1	-28.40
82	S12N28.3	Zf6	12	-7.079	12.206	2.5	-28.20
83	S27N28	H-ZK9A	27	70.533	-14.011	1	-28.00
84	S16N27.3	H-LAK52	16	-18.31	238.825	1.6	-27.30
85	S14N25.8	H-ZF3	14	26.36	-10.522	2.08	-25.80
86	S16N25.8	H-ZF3	16	26.36	-10.522	2.08	-25.80
87	S12N24.5	F4	12	-9.005	24.026	2	-24.50
88	S14.6N22.5	H-QK3	14.6	686.95	-10.79	3	-22.52
89	S14N16.3	H-ZF52A	14	11.1	-5.39	3	-16.30
90	S14N15	H-ZF7LA	14	-8.241	28.31	2	-15.00
91	S22N9.3	H-ZF2	22	365.24	-6.111	4	-9.30

Bonding Achromatic Lens



$$F = \frac{n \cdot R_1 \cdot R_2}{(n-1) \cdot (n \cdot (R_2 - R_1) + (n-1) \cdot t)}$$

Bonding Achromatic Lens is an achromatic consists of a positive low-index Crown Glass lens element cemented to a negative high-index Flint Glass lens element. The elements are chosen so as to cancel chromatic aberration at two well-separated wavelengths, usually in the blue and red region of the spectrum. Focal length is constant at those two wavelengths and focal length shifts are virtually eliminated across the visible wavelengths. One frequent use is to achieve diffraction limited focusing of a laser beam. Negative Achromatic are typically used when there is a need to eliminate chromatic aberration. In addition to reducing chromatic aberration at the design wavelengths, spherical aberration and coma are greatly reduced. TrueOptics can provide Positive Achromatic Lens and Negative Achromatic Lens by two piece single lens (Doublet) or three piece single lens (Triplet).

Parametres

Material:	Optical Glass
Surface Flatness:	< $\lambda/5$ @ 633nm
Scratch/Dig:	< 40/20 (both sides)
Eccentricity:	≤ 1 arcmin
Focal Length Tolerance:	< $\pm 1\%$
Diameter Tolerance:	< + 0.00/ - 0.02mm
Thickness Tolerance:	< ± 0.05
Clear Aperture:	$\geq 95\%$ of diameter
Coating:	AR OR BBAR
Blackening edge:	GT-7 OR EQUIVALENT
Diameter Range:	5~260mm

Store room

Serial No.	Parts No.	Material	DIA	R1	R2	TC	F
1	B45N9237	H-K51	45	36.73	127.35	12	-9236.90
2	B45N9237	ZF51	45	-127.35	-53.44	5	-9236.90
3	B15N6530	H-ZF6	15	-27.542	-23.605	2.8	-6530.00
4	B15N6530	H-ZK11	15	23.605	23.605	7.8	-6530.00

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Bonding Achromatic Lens

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Serial No.	Parts No.	Material	DIA	R1	R2	TC	F
5	B36N1867	H-ZF6	36	110.79	-29.054	3.04	-1867.00
6	B36N1867	H-QK3L	35.8	29.054	279	10	-1867.00
7	B17N498	H-ZF6	17	-9.911	-44.06	7	-498.00
8	B17N498	H-ZK3	16.8	44.06	18.42	10	-498.00
9	B16N458	H-ZF7LA	16	64.343	44.063	6.3	-458.00
10	B16N458	H-LAF4	15.8	-44.063	-44.063	2.7	-458.00
11	B25.5N346	H-ZK50	25.5	283.75	30.534	4.2	-346.00
12	B25.5N346	H-ZF12	25.5	-30.534	1E+13	2	-346.00
13	B17.6N318.6	H-ZPK2	17.6	18.298	48.412	4	-318.60
14	B17.6N318.6	H-ZLAF76	17.6	-48.412	-22.856	4.8	-318.60
15	B27N306	H-ZF7LA	27	-46.639	-35.721	15	-306.00
16	B27N306	H-BAK2	26.8	35.721	32.7	13.05	-306.00
17	B34N232.6	ZF4	34	1E+10	227.728	3	-232.63
18	B34N232.6	K9	34	-227.73	-98.66	1.5	-232.63
19	B38.8N203	H-K9L	38.81	-86.512	-96.749	4.445	-203.00
20	B38.8N203	F3	38.68	96.749	1E+12	5.588	-203.00
21	B19N203	BAK7	19	-227.73	-67.45	1.5	-202.91
22	B19N203	ZF6	19	67.45	-274	2.6	-202.91
23	B11N201.8	F4	11	-12.82	-9.02	1.2	-201.80
24	B11N201.8	H-K9L	11	9.02	11.61	5	-201.80
25	B31.2N173	H-ZLAF50B	31	167.28	28.439	6.55	-173.00
26	B31.2N173	ZF10	31.2	-28.439	-46.27	1	-173.00
27	B23.5N169.3	LAF3	23.5	24.17	-99.83	4.5	-169.30
28	B23.5N169.3	ZBAF52	23.5	99.83	-16.46	2	-169.30
29	B20N157.7	H-ZBAF20	20	20.6	23.461	7.2	-157.70
30	B20N157.7	H-ZF52A	20	-23.461	-18.76	4.53	-157.70
31	B17.6N157	H-ZPK2	17.6	19.404	36.213	4.4	-157.00
32	B17.6N157	H-ZF6	17.6	-36.213	-17.843	7.8	-157.00
33	B17N152.6	H-LAK11	17	21.179	17.843	5	-152.60
34	B17N152.6	H-ZF6	17	-17.843	-18.791	5	-152.60
35	B43N111.5	H-FK61	43	27.233	-109.04	13	-111.50
36	B43N111.5	H-QF1	43	109.043	-15.511	5	-111.50
37	B15N109	H-LAF53	15	11.695	36.06	5	-109.00
38	B15N109	H-ZF7LA	15	-36.06	-8.511	2	-109.00
39	B17N105.9NEW	H-ZF6	17	-10.069	-25.41	1.2	-105.90
40	B17N105.9NEW	H-LAF53	17	25.41	14.555	5.3	-105.90

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Bonding Achromatic Lens

Serial No.	Parts No.	Material	DIA	R1	R2	TC	F
41	B17N105.9	H-ZF6	17	-10.069	-25.41	1.2	-105.90
42	B17N105.9	H-LAF53	17	25.41	14.555	5.3	-105.90
43	B21N91.8	H-ZLAF68	21	11.854	-43.96	6.6	-91.80
44	B21N91.8	H-ZF88	21	43.96	-7.449	1.5	-91.80
45	B38.5N89.2	ZBaF5	38.5	81.75	27.94	15	-89.19
46	B38.5N89.2	ZF7L	38.5	-81.75	-15.92	9	-89.19
47	B22N86.5	H-ZLAF68B	22	13.35	-38.55	5	-86.50
48	B22N86.5	H-ZF88	22	38.55	-9.036	2	-86.50
49	B17N85	H-ZK6	16.8	21.2	41.498	5.4	-85.00
50	B17N85	H-ZF12	17	-41.498	-16.38	6.8	-85.00
51	B20N77.6	H-LAF53	20	16.144	-30.34	3.4	-77.60
52	B20N77.6	H-ZK6	20	30.34	-9.727	1.4	-77.60
53	B25.4P77	H-ZLAF68	25.35	183.81	-49.148	0.71	-77.00
54	B25.4P77	H-LAK10	25.35	49.148	50.48	3.96	-77.00
55	B18N73.9	H-QK3L	15	12.647	18.03	6	-73.90
56	B18N73.9	H-ZF7LA	18	-18.03	-18.03	1.8	-73.90
57	B26N63.6	H-BAK4	26	18	829	7.1	-63.57
58	B26N63.6	QF3	26	-829	-10.17	2	-63.57
59	B28.6N63.1	H-ZF3	28.6	361.95	33.782	5.588	-63.10
60	B28.6N63.1	H-BAK6	28.6	-33.782	-24.714	6.096	-63.10
61	B12.5N54	H-ZK3	12.5	-48.395	-26	1	-53.99
62	B12.5N54	H-F4	12.5	26	-83.68	1.6	-53.99
63	B27N50.6	F4	27	-272	28.6	8	-50.56
64	B27N50.6	K9	27	-28.6	-24.6	5	-50.56
65	B18N49	H-K9L	18	21.53	33.989	8	-49.00
66	B18N49	H-ZF13	18	-33.989	-16.666	8	-49.00
67	B12N44.2	H-ZBAF3	12	8.85	14.56	4.7	-44.20
68	B12N44.2	H-ZF12	12	-14.56	-6.11	1.5	-44.20
69	B15N43	H-FK61	15	15.3	15.3	5	-43.00
70	B15N43	H-ZF62	15	-15.3	-26.36	2	-43.00
71	B18N37.2	H-ZBAF3	18	19.907	22.131	6	-37.20
72	B18N37.2	H-ZF6	18	-22.131	-8.954	14.4	-37.20
73	B15P35.4	H-LAK51	15	54.28	45.64	2.6	-35.40
74	B15P35.4	H-ZF50	15	-45.64	43.506	2.6	-35.40
75	B9N34.6	H-QK3	9	-11.5	-11	1.5	-34.60
76	B9N34.6	H-QF50	9	11	138.401	2.5	-34.60

Bonding Achromatic Lens

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Serial No.	Parts No.	Material	DIA	R1	R2	TC	F
77	B23N34.3	H-ZLAF50B	23	15.37	60.25	7.1	-34.30
78	B23N34.3	H-ZF62	23	-60.25	-8.433	2.44	-34.30
79	B12.5N29	H-ZK3	12.5	-33	-11.5	1	-28.95
80	B12.5N29	H-F4	12.5	11.5	-33	2.3	-28.95
81	B15.5N28.8	ZK9	15.5	-32.77	-17.3	1.2	-28.80
82	B15.5N28.8	ZF6	15.5	17.3	-32.77	2.4	-28.80
83	B8N24.3	K9	8	67.92	-6.194	1.5	-24.27
84	B8N24.3	F4	8	6.194	-9.204	1.5	-24.27
85	B28N23.4	H-ZK11	28	24.1	90.806	7.5	-23.40
86	B28N23.4	H-ZF6	28	-90.806	-7.656	13	-23.40
87	B13.5N22.1	ZK9	13.5	-57.41	-10.03	1	-22.14
88	B13.5N22.1	ZF7	13.5	-15.136	10.03	2.6	-22.14
89	B15N21.8	K9L	15	-18.621	-10.35	1.2	-21.80
90	B15N21.8	ZF6	15	10.35	-18.621	3	-21.80
91	B25.2N19.6	H-ZLAF50B	21	-18.32	15.75	6	-19.60
92	B25.2N19.6	H-ZF4	25.2	-15.75	-70.552	4	-19.60
93	B16N19.4	ZF7	15.9	-18.03	10.646	2.9	-19.35
94	B16N19.4	QF1	16	-18.03	-10.646	1	-19.35
95	B15.8N19.3	H-QF1	15.84	-8.976	-11.854	4.922	-19.30
96	B15.8N19.3	H-ZF3	15.72	11.854	-121.31	4.688	-19.30
97	B18N15.4	H-K9L	18	-37.5	1E+12	1.3	-15.40
98	B18N15.4	H-ZF3	15	1E+11	-14.421	1	-15.40
99	B9N11.6	H-K9L	9	-7.809	-5.45	6.2	-11.60
100	B9N11.6	H-F4	8.8	5.45	-19.148	3.6	-11.60
101	B7N9.7	H-ZK6	7	-7.667	-3.821	3.8	-9.70
102	B7N9.7	ZBAF4	7	3.821	-23.744	5.5	-9.70
103	B10.5N6.6	SF56A	10.5	-13.555	-4.9018	1.5	-6.60
104	B10.5N6.6	N-LASF44	6	4.90177	-9.2621	2.5	-6.60
105	B8P10.6	N-LAK22	6.5	9.63866	3.59664	4	10.60
106	B8P10.6	SF57	8	-3.5966	9.63866	1.5	10.60
107	B14.6P15.9	ZK9	14.4	11.749	11.749	5.7	15.92
108	B14.6P15.9	ZF7	14.6	27.8	-11.749	1	15.92
109	B16P19.9	Zk9	16	14.622	14.622	6	19.90
110	B16P19.9	Zf7	16	35.73	-14.622	1.2	19.90
111	B12.2P20.8	ZK3	12.2	13.397	9.29	5	20.78
112	B12.2P20.8	ZF6	12.2	32.66	-9.29	1	20.78

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Bonding Achromatic Lens

Serial No.	Parts No.	Material	DIA	R1	R2	TC	F
113	B15P21.2	ZK11	14.5	17.498	10.03	6	21.22
114	B15P21.2	ZF7L	15	-10.03	27.4	1.1	21.22
115	B12.2P21.5	BaK4	12.2	15.453	9.247	4.4	21.49
116	B12.2P21.5	ZF6	12.2	22.03	-9.247	1	21.49
117	B12P21.7	ZF7	12	1E+100	-9.772	1	21.68
118	B12P21.7	BaF5	12	9.772	9.772	5.9	21.68
119	B12.7P22	H-K9L	12.7	21.674	8.465	5	22.00
120	B12.7P22	H-ZF2	12.7	-8.465	15.745	2.5	22.00
121	B12.7P22	H-K9L	12.7	21.674	8.465	5	22.00
122	B12.7P22	H-ZF2	12.7	-8.465	15.745	2.5	22.00
123	B9P22.8	S-BAM4	9	19.248	8.77	3.3	22.80
124	B9P22.8	H-ZF13	9	-8.77	23.19	1	22.80
125	B12.7P23.9	H-LAK10	12.7	20.99	9.911	5	23.90
126	B12.7P23.9	H-ZF7LA	12.7	-9.911	28.847	1.5	23.90
127	B15.5P23.9	ZK9	15.3	11.455	11.455	7.1-0.1	23.90
128	B15.5P23.9	ZF7	15.5	1E+100	-11.455	1.2-0.1	23.90
129	B17P24.3	H-LAK51	15	9.772	50.58	6	24.34
130	B17P24.3	QF5	17	32.58	-9.772	3	24.34
131	B28.2P24.6	H-QK3L	28.2	-93.929	-54.598	1	24.60
132	B28.2P24.6	H-ZLAF55C	27.8	54.598	21.15	8.13	24.60
133	B12.5P24.9	ZK3	12.3	13.996	9.817	5	24.93
134	B12.5P24.9	ZF6	12.5	50.7	-9.817	1	24.93
135	B12.5P25.1	ZK5	12.5	15.241	9.247	5	25.08
136	B12.5P25.1	ZF5	12.5	52.97	-9.247	1.2	25.08
137	B12P27.8	H-LAK51	12	13.74	11.272	4.4	27.80
138	B12P27.8	H-ZF52A	12	-11.272	-222.17	1.2	27.80
139	B15P28.5	H-LAK53A	14.8	52.5	19.121	3.6	28.50
140	B15P28.5	H-F13	15	-19.121	42.11	1.5	28.50
141	B7.4P30(方)	H-K9L	7.4	18.15	13.428	2.8	30.00
142	B7.4P30(方)	ZF2	7.4	-13.428	39.6	0.9	30.00
143	B12.7P30	H-K9L	12.7	18.408	13.737	4	30.00
144	B12.7P30	H-ZF2	12.7	-13.737	38.756	1.5	30.00
145	B15P30	H-ZBAF52	15	20.72	13.17	6	30.00
146	B15P30	H-ZF4	15	-13.17	128.44	1.5	30.00
147	B17P30	ZF6	17	32.37	-11.5	2.5	30.04
148	B17P30	BAF4	17	22.23	11.5	6	30.04

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Serial No.	Parts No.	Material	DIA	R1	R2	TC	F
149	B20.2P30.9	ZF5	20.2	1E+100	-15.596	1.5	30.88
150	B20.2P30.9	ZK6	20.2	15.596	15.596	9	30.88
151	B14.7P32.9	ZF7	14.7	-116.95	-9.772	1	32.89
152	B14.7P32.9	ZK9	14.7	12.246	9.772	6.8	32.89
153	B22P33.9	ZK4	22	21.58	18.535	8	33.88
154	B22P33.9	ZF6	22	260.6	-21.58	1.8	33.88
155	B14P34.1	ZF6	14	1E+100	-8.954	1	34.14
156	B14P34.1	ZK7	14	14.388	8.954	6.1	34.14
157	B11.7P34.3	ZF13	11.7	-36.5	-9.708	4.4	34.27
158	B11.7P34.3	ZK3	11.7	9.708	9.708	4.9	34.27
159	B18P34.7	H-ZF7L	18	-299.94	-12.8	1	34.68
160	B18P34.7	H-ZK9	18	12.8	14.67	8.1	34.68
161	B22P34.7	LAK7	21.8	30.41	30.41	5.2	34.75
162	B22P34.7	ZF52	22	-30.41	80.17	1.5	34.75
163	B16P34.8	ZF13	16	43.067	-27.72	2	34.80
164	B16P34.8	H-ZLAF50B	15.6	27.72	77.04	3.5	34.80
165	B14.2P35.8	H-ZLAF52	14.2	22.285	-11.449	1.5	35.80
166	B14.2P35.8	H-ZK3	14	11.449	53.416	4.4	35.80
167	B12.5P36	K9	12.5	36.39	11.09	3.7	36.11
168	B12.5P36	ZF1	12.5	-11.09	25.06	1.5	36.11
169	B14P37.7	H-ZK10L	12	40.472	7.994	4.24	37.70
170	B14P37.7	H-ZF7LA	17	-7.994	23.55	2.05	37.70
171	B16P37.8	ZK9	16	22.91	14.01	5.5	37.84
172	B16P37.8	ZF6	16	-14.01	83.68	1.2	37.84
173	B18P38.3	H-ZF7L	18	1E+14	-12.9	1	38.34
174	B18P38.3	H-ZK9	18	12.9	16.385	7.6	38.34
175	B20P38.3	ZK6	19	26.543	15.776	6	38.34
176	B20P38.3	ZF6	20	60.53	-15.776	1.4	38.34
177	B12P39.1	H-BAK7	12	27.71	15	2.75	39.10
178	B12P39.1	H-ZF1	12	-15	61.17	1	39.10
179	B15.5P39.1	ZBAF1	15.2	49.92	15.4	4.1	39.14
180	B15.5P39.1	H-ZF2	15.5	-15.4	39.69	1.75	39.14
181	B13P39.6	H-ZF2	13	-30.269	-14.791	3	39.60
182	B13P39.6	H-ZK11	13	14.791	14.791	7.7	39.60
183	B20P40	K9	20	22.647	18.679	6.7	40.00
184	B20P40	ZF2	20	-18.679	61.313	1.8	40.00

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Serial No.	Parts No.	Material	DIA	R1	R2	TC	F
185	B13.5P40	H-ZF13	13.5	47.801	-16.555	1.4	40.00
186	B13.5P40	H-ZBAF52	13.5	16.555	42.225	3.4	40.00
187	B14.8P40.5	ZF7	14.8	270	-11.9	1.5	40.47
188	B14.8P40.5	ZK3	14.8	11.9	15.54	5.6	40.47
189	B21.4P41.6	ZF6	21.4	-133.66	-17.989	1.8	41.62
190	B21.4P41.6	ZK9	21.4	17.989	17.989	9	41.62
191	B22P42	H-LAF3B	22	36.98	15.276	7.5	42.00
192	B22P42	H-F5	22	-15.276	-161.8	1	42.00
193	B16.8P42.4	H-BAK2	16.4	34.973	16.484	4.6	42.40
194	B16.8P42.4	H-ZF11	16.8	-16.484	38.198	1.6	42.40
195	B11.2P42.5	K9	11.2	43.26	10.443	3	42.50
196	B11.2P42.5	ZF1	11.2	-10.443	26.55	1	42.50
197	B18P42.9	H-ZF6	18	155.62	-33.525	1	42.90
198	B18P42.9	H-ZLAF50B	18	33.525	46.6	3.3	42.90
199	B18P43.5	H-ZF7L	18	-217.9	-13.889	1	43.55
200	B18P43.5	H-ZK9	18	13.889	16.72	7.2	43.55
201	B14P43.6	H-ZF7L	14	-140.05	-9.2	1.5	43.65
202	B14P43.6	H-ZK3	14	9.2	12.702	6.6	43.65
203	B12N44.2	H-ZBAF3	12	8.85	14.56	4.7	44.20
204	B12N44.2	H-ZF12	12	-14.56	-6.11	1.5	44.20
205	B12.5P44.2	K9	12	13.99	28.44	3.8	44.22
206	B12.5P44.2	H-ZF6	12.5	32.2	-13.99	1.21	44.22
207	B14.2P44.8	ZF13	14.2	-45	-11.9	2	44.74
208	B14.2P44.8	ZK3	14.2	11.9	11.9	5.7	44.74
209	B11.1P45	K9	11.1	31.6	18	3.5	44.99
210	B11.1P45	ZF1	11.1	-18	48	1.5	44.99
211	B9P45.5	H-K9L	9	31.896	20.828	3	45.50
212	B9P45.5	H-F4	9	-20.828	55.85	2.5	45.50
213	B10P46	H-ZF7LA	10	21.211	-9	2.5	46.00
214	B10P46	H-LAK10	10	9	1E+11	4.5	46.00
215	B25.5P46.5	LAK2	25.5	37.07	37.07	6.3	46.48
216	B25.5P46.5	ZF7L	25.5	-37.07	128.53	2.3	46.48
217	B23P47.3	BaK2	23	29.24	29.24	6.1	47.28
218	B23P47.3	ZF7	23	66.37	-29.24	2	47.28
219	B18P47.5	H-ZF13	18	-900	-14.01	1	47.52
220	B18P47.5	H-ZK3	18	14.01	17.5	7	47.52

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Serial No.	Parts No.	Material	DIA	R1	R2	TC	F
221	B13.1P47.7	K9	13.1	33.525	19.01	3.5	47.67
222	B13.1P47.7	ZF1	13.1	-19.01	50.77	1.5	47.67
223	B14.2P48	H-ZLAF66	14.2	48.95	-14.658	1.5	48.00
224	B14.2P48	H-ZK3	14	14.658	30.837	5	48.00
225	B27P48.2	ZBAF20	27	35	35	6.9	48.25
226	B27P48.2	ZF52	27	-35	170.22	2	48.25
227	B27P48.3	ZBAF3	27	36.81	36.81	6.6	48.35
228	B27P48.3	ZF7L	27	-36.81	111.94	1.8	48.35
229	B28P48.7	K9	28	30.13	23.01	9	48.70
230	B28P48.7	F3	28	-23.01	75.01	1.5	48.70
231	B18P48.7	H-ZF7LA	18	110.66	-51.05	1.8	48.70
232	B18P48.7	H-LAK3	18	51.05	51.05	3	48.70
233	B26P48.9	ZF1	26	62.23	-19.59	2	48.89
234	B26P48.9	ZK3	26	19.59	42.95	8.5	48.89
235	B20P49	H-ZF7LA	20	1E+13	-23.55	1.4	49.00
236	B20P49	H-LAK2	20	1E+13	14.421	5.6	49.00
237	B26P49.6	LAK1	25.8	48.87	28.77	6	49.57
238	B26P49.6	ZF7	26	1E+100	-48.87	2	49.57
239	B12.7P50	H-K9L	12.7	21.44	18.91	3.5	50.00
240	B12.7P50	H-F2	12.7	-18.91	772.6	1.5	50.00
241	B16P50.3	H-ZF6	16	-67.7	-11.17	1.2	50.26
242	B16P50.3	H-ZK3	16	11.17	14.369	7	50.26
243	B26P51.3	H-F1	26	48.891	-17.455	4	51.30
244	B26P51.3	H-ZLAF50B	24	17.455	-180.13	6	51.30
245	B22P52.9	H-LAK3	22	16.144	92.68	6.5	52.90
246	B22P52.9	H-ZF7LA	22	-92.68	-24.15	1	52.90
247	B22P53.3	ZK3	20.5	17.55	17.55	7.9	53.30
248	B22P53.3	ZF7L	22	-143.22	-17.55	2	53.30
249	B14.8P54	ZF7	14.8	230	-14.5	1.5	54.01
250	B14.8P54	ZK3	14.8	14.5	20.3	4.5	54.01
251	B13P54.2	H-K9L	13	50	17.498	3	54.20
252	B13P54.2	H-F4	13	-17.498	43.536	1.5	54.20
253	B21.5P56.2	H-ZF7L	21.5	1E+11	-14.02	1.5	56.22
254	B21.5P56.2	H-ZK9	21.5	14.02	21.6	9.6	56.22
255	B20N56.8	H-LAF3B	19.9	12.88	77.62	6.23	56.80
256	B20N56.8	H-ZF13	19.98	-77.62	-7.943	1.09	56.80

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Serial No.	Parts No.	Material	DIA	R1	R2	TC	F
257	B18P57.9	ZF7	18	-83.623	-13.395	1.5	57.92
258	B18P57.9	ZK9	18	16.955	13.395	7.5	57.92
259	B26P58.5	H-ZF7L	26	-900	-19.8	1.3	58.52
260	B26P58.5	H-ZK9	26	19.8	24.2	10.3	58.52
261	B12.5P60	H-K9L	12.5	36.51	26.33	3.5	60.00
262	B12.5P60	H-ZF2	12.5	-26.33	78.35	1.5	60.00
263	B26.5P62	K9	26.5	44.77	39.17	6.1	62.04
264	B26.5P62	ZF1	26.5	105.68	-44.77	2.3	62.04
265	B45P71.8	H-QF50	45	57.905	28.5	18	71.80
266	B45P71.8	H-ZLAF75A	45	-28.5	58.8	3.6	71.80
267	B22.5P73.9	K9	22	17.989	17.989	9	73.89
268	B22.5P73.9	ZF6	22.5	-147	-17.989	2	73.89
269	B13P74.8	H-K9L	13	79.25	22.86	4	74.84
270	B13P74.8	H-F4	13	-22.86	53.95	1	74.84
271	B21.5P74.9	H-LAK3	21.5	15.776	229.1	5.6	74.90
272	B21.5P74.9	H-ZF3	21.5	-229.1	-16.827	1.7	74.90
273	B30P75	H-K9L	30	45.7	34.43	7.8	75.00
274	B30P75	H-ZF2	30	-34.43	100.23	2.1	75.00
275	B15P75.4	BAF3	15	29.7	15.596	4	75.41
276	B15P75.4	QF50	15	-15.596	-87.9	1.8	75.41
277	B27P76	ZF7	27	1E+100	-27.193	2	75.66
278	B27P76	BAK7	27	27.193	27.193	8.8	75.66
279	B28.5P79.2	ZF7L	26	-97.74	-97.74	1.75	76.19
280	B28.5P79.2	BaK7	28.5	97.74	25.23	7	76.19
281	B46P76.2	H-LAK4L	44	121.34	26.36	18	76.20
282	B46P76.2	H-ZLAF75A	46	-26.36	50	5	76.20
283	B26P76.5	H-ZF7LA	26	34.88	-18.197	1.8	76.50
284	B26P76.5	H-LAF53	22	18.197	-100.93	6	76.50
285	B26P77.3	K9	25.9	23.82	23.82	9	77.26
286	B26P77.3	ZF6	26	1E+100	-23.82	2.5	77.26
287	B33P77.4	H-LAK52	33	52.2042	45.2624	9	77.40
288	B33P77.4	H-ZF52A	33	-45.262	566.909	2.4	77.40
289	B33P77.4	H-LAK52	33	52.2042	45.2624	9	77.40
290	B33P77.4	H-ZF52A	33	-45.262	566.909	2.4	77.40
291	B27P78.9	H-ZF4	27	-60	-60	2	78.91
292	B27P78.9	H-BAK4	27	60	21.56	7.2	78.91

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Serial No.	Parts No.	Material	DIA	R1	R2	TC	F
293	B21P80	H-KF6	21	65.77	33.62	5.5	80.00
294	B21P80	H-ZF52A	20	-33.62	58.27	2	80.00
295	B23P80.1	K9	23	48.87	32.96	5.5	80.09
296	B23P80.1	F4	23	119.12	-32.96	2.5	80.09
297	B16P80.4	H-ZBAF5	16	62.907	12	5	80.40
298	B16P80.4	H-ZF2	16	-12	339.583	2.5	80.40
299	B26.5P81	H-K9L	26.5	52.7	38.63	5.5	81.03
300	B26.5P81	H-LAF4	26.5	-38.63	86.21	2	81.03
301	B30.5P81.4	F4	30.5	-268	-39.2	3	81.43
302	B30.5P81.4	ZK3	30.5	39.2	39.2	10	81.43
303	B9P81.9	ZF7L	9	13.765	-6.871	3.2	81.90
304	B9P81.9	ZF2	9	6.871	-15.075	10	81.90
305	B40P83	H-ZBAF52	40	59.05	65	8.5	83.00
306	B40P83	H-ZF4	40	-65	435.85	4	83.00
307	B22.8P83.6	K9	22.8	51.52	33.42	4.5	83.55
308	B22.8P83.6	F1	22.8	130.02	-33.42	1.5	83.55
309	B25P84.1	ZF52	25	-199.99	-26.1	2	84.11
310	B25P84.1	ZK7	25	26.1	26.1	7.9	84.11
311	B34P84.3	H-ZBAF50	34	112.24	37.98	8	84.34
312	B34P84.3	ZF7	34	-168.1	-112.24	2.5	84.34
313	B30.5P84.5	H-ZK9	30	22.579	52.875	9.4	84.46
314	B30.5P84.5	H-ZF7L	30.5	96.38	-22.579	2.8	84.46
315	B16P85.2	H-K9L	15.6	121.47	13.48	4.2	85.20
316	B16P85.2	ZF13	16	-13.48	29.089	2	85.20
317	B27P86.4	H-K9L	27	56	41.8	5.5	86.44
318	B27P86.4	H-LAF4	27	-41.8	93.5	1.5	86.44
319	B25P89.7	H-ZK6	25	62.907	19.873	8.65	89.70
320	B25P89.7	H-ZF4	25	-19.873	99.1	2.85	89.70
321	B22P90	K9	22	50	38.74	4.5	89.98
322	B22P90	F4	22	-38.74	177.5	1.5	89.98
323	B22P93.6	ZF2	22	168.93	-47.53	2.5	93.57
324	B22P93.6	K9	22	47.53	51.38	7	93.57
325	B32P93.6	ZF2	32	168.93	-47.53	2.5	93.57
326	B32P93.6	K9	32	51.38	47.53	7	93.57
327	B33P93.9	K9	33	50.23	50.23	7	93.86
328	B33P93.9	F4	33	248.9	-50.23	2.5	93.86

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Serial No.	Parts No.	Material	DIA	R1	R2	TC	F
329	B20.7P95	H-ZLAF50B	20.5	36.73	36.73	4.07	95.00
330	B20.7P95	ZF4	20.7	-36.73	-51.24	1	95.00
331	B21P95.6	ZF7	21	-49.2	-19.055	2	95.55
332	B21P95.6	ZK9	20.8	19.055	19.055	7.5	95.55
333	B30P96.3	H-ZK10	30	48.31	51.24	17.7	96.30
334	B30P96.3	ZF7L	30	-51.24	1127.2	3	96.30
335	B52P100	H-K50	51.9	44.3	44.3	20.185	100.00
336	B52P100	H-ZF7LA	52	-44.3	1E+13	3.485	100.00
337	B23P100.6	ZK9	22.8	17.783	17.783	9.6	100.58
338	B23P100.6	ZF7	23	-37.07	-17.783	1.85	100.58
339	B13P101.2	H-ZK21	13	27.193	27.193	4.1	101.20
340	B13P101.2	ZF2	13	-27.193	-54.94	1.5	101.20
341	B26P102	H-K9L	26	55.67	43.76	5	101.97
342	B26P102	H-F4	26	-43.76	212.4	1.5	101.97
343	B30P104	H-ZF2	30	-442.6	-34.04	2	104.00
344	B30P104	H-K9L	30	34.04	34.04	8.6	104.00
345	B22P105	H-ZF7	22	-20.23	-498.9	1.3	105.00
346	B22P105	H-LAK1	21	36.64	20.23	5.5	105.00
347	B33.5P106.8	BaF3	33.5	65.77	47.53	6.8	106.79
348	B33.5P106.8	ZF2	33.5	263	-47.53	2.3	106.79
349	B25P106.9	ZF7	25	-55.72	-22.09	2	106.91
350	B25P106.9	ZK9	25	22.09	22.09	9.6	106.91
351	B26.5P108	K9	26.5	62.803	45.628	5	108.04
352	B26.5P108	F4	26.5	-45.628	185.42	2	108.04
353	B14P108.3	H-ZF6	14	-27.94	-32.15	2	108.30
354	B14P108.3	H-K9L	14	32.15	13.397	4.7	108.30
355	B17P111.3	H-KF6	17	25.75	44.5997	6	111.30
356	B17P111.3	ZF52	17	-44.599	-178.5	1.5	111.30
357	B34P112	H-K9L	34	81.85	42.36	7	112.00
358	B34P112	H-ZF1	34	-42.36	111.17	2	112.00
359	B13P116.4	H-BAK6	12.85	70.6	42.88	5	116.40
360	B13P116.4	H-F4	13	-42.88	318.9	2	116.40
361	B44P117.6	H-K9L	44	71.2	57	10.2	117.58
362	B44P117.6	H-F4	44	-57	196.855	2.5	117.58
363	B32P118	K9L	32	67.45	50.12	6.8	118.03
364	B32P118	F4	32	-50.12	210.9	2.4	118.03

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Serial No.	Parts No.	Material	DIA	R1	R2	TC	F
365	B33P118.1	K9	33	65.46	48.19	6.9	118.14
366	B33P118.1	F1	33	248.9	-48.19	2.3	118.14
367	B26.5P119.4	K9	26.5	89.26	40.18	5	119.37
368	B26.5P119.4	ZF10	26.5	99.08	-40.18	2.4	119.37
369	B44P119.7	ZK3	44	88.72	72.11	8.1	119.65
370	B44P119.7	ZF3	44	-72.11	199.99	3	119.65
371	B29.5P119.7	H-ZK2	29.5	31.41	45.29	7	119.68
372	B29.5P119.7	H-ZF4	29.5	-45.29	-90.16	2	119.68
373	B40P120	H-BAK6	40	77.208	54.089	8.2	120.00
374	B40P120	H-ZF2	40	-54.089	216.123	3	120.00
375	B50P120	H-K9L	50	75.283	55.735	15.3	120.00
376	B50P120	H-ZF2	50	-55.735	151.85	4.7	120.00
377	B32P121.5	K9	32	70.96	50.82	6.3	121.51
378	B32P121.5	F4	32	-50.82	203.91	2.4	121.51
379	B22P122	H-K51	22	-36	-23.88	1.06	122.00
380	B22P122	H-ZLAF50B	21	23.88	75.34	4.29	122.00
381	B13P125	H-K9L	13	86.1	45.39	3.3	125.00
382	B13P125	H-F4	13	-45.39	143.88	1.5	125.00
383	B23P125	H-K9L	23	86.1	45.39	3.3	125.00
384	B23P125	H-F4	23	-45.39	143.88	1.5	125.00
385	B43P126.7	BaK7	43	65.31	65.31	9.1	126.65
386	B43P126.7	ZF2	43	907.8	-65.31	2.9	126.65
387	B32P127.6	K9	32	40.09	40.09	9.6	127.62
388	B32P127.6	ZF2	32	-40.09	-409.3	2.8	127.62
389	B43P131.3	K9	43	60.51	65.46	9.1	131.29
390	B43P131.3	F4	43	-65.46	990.8	2.9	131.29
391	B32P131.3	K9	32	77.98	53.95	7	131.34
392	B32P131.3	F2	32	215.8	-53.95	3	131.34
393	B37P131.3	K9	37	77.98	53.95	7	131.34
394	B37P131.3	F2	37	215.8	-53.95	3	131.34
395	B38P132.8	ZK3	38	98.63	74.47	6.5	132.83
396	B38P132.8	ZF3	38	-74.47	214.8	2.8	132.83
397	B38P137.3	H-ZF72A	38	-25.704	-60.05	5	137.30
398	B38P137.3	H-LAF1	38	60.05	32.137	18	137.30
399	B49P137.5	H-ZBAF50	49	94.5293	75.2924	10.5	137.50
400	B49P137.5	H-ZF7	49	-75.292	351.19	3.5	137.50

Serial No.	Parts No.	Material	DIA	R1	R2	TC	F
401	B44P137.6	ZK3	44	103.02	75.86	8.1	137.61
402	B44P137.6	ZF3	44	-75.86	216.8	3	137.61
403	B52P140	H-K9L	52	89	67.38	11.5	139.95
404	B52P140	H-F4	52	-67.38	209.947	2.5	139.95
405	B42P142.2	K9	42	83.623	61.66	7.6	142.18
406	B42P142.2	F4	42	239.9	-61.66	2.3	142.18
407	B43.2P143.2	H-BAK2	43.1	96.51	53.8	8.8	143.20
408	B43.2P143.2	H-F4	43.2	-53.8	210.2	3.7	143.20
409	B42P145.5	K9	42	86.21	61.24	7.9	145.48
410	B42P145.5	F4	42	-61.24	234	3	145.48
411	B18P147	K9	18	35.24	67.76	3.4	147.01
412	B18P147	F1	18	-67.76	-87.1	1.5	147.01
413	B38.8P148.7	ZBAF2	38.68	-377.89	45.491	7.239	148.70
414	B38.8P148.7	H-ZF3	38.81	-45.491	72.009	5.207	148.70
415	B42P148.7	ZF2	42	-65.16	199.53	2.6	148.75
416	B42P148.7	K9	42	89.13	65.16	8.6	148.75
417	B35P150	ZF11	35.5	-280.5	-39	2.2	149.84
418	B35P150	K9	35	39	39	9.2	149.84
419	B30P150.4	K9	30	44.691	28.07	9	150.37
420	B30P150.4	ZF3	30	-28.07	380.2	3	150.37
421	B42P150.4	K9	42	89.26	61.57	8.2	150.42
422	B42P150.4	F2	42	246.6	-61.57	3.8	150.42
423	B15.2P151.8	H-ZF7L	15.2	-21.8	-10.33	1.5	151.79
424	B15.2P151.8	H-ZK9	15.2	10.33	12.75	7.1	151.79
425	B32P152.3	Zf7	32	-80.17	-30.62	2.5	152.28
426	B32P152.3	ZK9	32	30.62	30.62	11	152.28
427	B51P152.7	ZK3	51	106.66	91.41	10	152.72
428	B51P152.7	ZF4	51	279.3	-91.41	4	152.72
429	B17P155.8	H-K9L	17	32.5	39.686	3.3	155.80
430	B17P155.8	ZF7L	17	-39.686	-312.6	1.5	155.80
431	B17P155.8	H-K9L	17	32.5	39.686	3.3	155.80
432	B17P155.8	ZF7L	17	-39.686	-312.6	1.5	155.80
433	B44P156.7	K9	44	159.59	55.72	8	156.73
434	B44P156.7	F4	44	-55.72	122.46	3	156.73
435	B24P157	H-ZF7LA	24	-549.5	-22.28	1.4	157.00
436	B24P157	H-LAK1	23	22.28	45.19	6	157.00

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Bonding Achromatic Lens

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Serial No.	Parts No.	Material	DIA	R1	R2	TC	F
437	B44P157.3	FK61	44	86.21	86.21	7.7	157.33
438	B44P157.3	LAF4	44	-86.21	210.9	2.6	157.33
439	B42.5P160	H-K9L	42.46	107.586	63.3716	8.99	160.00
440	B42.5P160	H-F13	42.46	-63.372	192.836	2.99	160.00
441	B52P160.5	K9	52	92.68	64.9	12	160.47
442	B52P160.5	F4	52	-64.9	268.5	3.5	160.47
443	B52P161	BaK2	52	98.63	74.82	10	161.01
444	B52P161	ZF2	52	263	-74.82	3.5	161.01
445	B25.5P162.2	ZF52	25.5	-65.31	-22.18	2	162.24
446	B25.5P162.2	ZK3	25.5	22.18	22.18	9.6	162.24
447	B35.2P163.7	H-ZF4	35.2	-251.8	-37.67	3.2	163.70
448	B35.2P163.7	H-K9L	35.2	37.67	37.67	11	163.70
449	B26.5P168	ZF52	26.5	-70.96	-23.55	2	168.05
450	B26.5P168	ZK3	26.5	23.55	23.55	10	168.05
451	B53P168.3	K9	53	116.41	95.72	10	168.26
452	B53P168.3	F4	53	233.3	-95.72	3.8	168.26
453	B57.5P173	H-K9L	57.5	85.658	99.581	13	173.00
454	B57.5P173	H-ZF2	57.5	-99.581	511.29	4	173.00
455	B44P173.6	H-ZF7LA	44	-154.29	1E+12	2.5	173.60
456	B44P173.6	H-ZLAF50B	44	1E+13	74.85	6.91	173.60
457	B44P173.6	H-ZLAF50B	44	1E+13	74.85	6.91	173.60
458	B44P173.6	H-ZF7LA	44	-154.29	1E+12	2.5	173.60
459	B24P177	ZF7	24	-48.08	-23.39	3	177.08
461	B45P178	FK61	45	97.1	97.1	7.6	178.10
462	B45P178	LAF4	45	-97.1	239.9	3	178.10
463	B24P180	ZF6	24	177.83	-76.03	2.2	179.95
464	B24P180	BAK7	24	76.03	150.31	3.6	179.95
465	B21P180	BAF5	21	60.39	-23.99	1.5	179.98
466	B21P180	BAK2	21	23.99	-297.9	4	179.98
467	B38.8P180	H-K9L	38.68	116.078	60.427	10.668	180.00
468	B38.8P180	F3	38.81	-60.427	217.805	5.588	180.00
469	B44P181.5	K9	44	52.7	40.9	15.2	181.46
470	B44P181.5	ZF2	44	-691.8	-40.9	5	181.46
471	B38.8P184.4	H-ZF3	38.81	187.096	-41.148	3.937	184.40
472	B38.8P184.4	ZBAF2	38.68	41.148	181.35	8.382	184.40
473	B52P187	K9	52	106.61	80.17	10	187.06

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Serial No.	Parts No.	Material	DIA	R1	R2	TC	F
474	B52P187	F4	52	340.4	-80.17	4.5	187.06
475	B34P189.3	K9	34	139	59.288	5.9	189.26
476	B34P189.3	F4	34	-59.288	185.5	3	189.26
477	B35P190	BAF3	35	39.26	564.9	8.74	190.00
478	B35P190	ZF3	35	92.9	-39.26	4.36	190.00
479	B52P192	K9	52	115.08	83.75	10	191.95
480	B52P192	ZF2	52	-83.75	257	3.5	191.95
481	B52P195.8	K9	52	116.95	83.623	10	195.83
482	B52P195.8	F4	52	-83.623	316.2	4.5	195.83
483	B52P195.9	K9	52	116.41	81.85	10	195.93
484	B52P195.9	F2	52	326.6	-81.85	4.5	195.93
485	B28.6P199.6	H-K9L	28.42	58.191	119.05	5.588	199.60
486	B28.6P199.6	H-ZF3	28.55	-119.05	-304.8	3.048	199.60
487	B28P200	H-ZPK1	27.8	48.691	80.988	5	200.00
488	B28P200	H-TF3L	28	-48.691	-218.78	1	200.00
489	B50P200	H-BAK7	50	127.02	96.83	10	200.00
490	B50P200	ZF11	50	-96.83	373.385	3.73	200.00
491	B72P200	H-K9L	72	118.81	96.37	17.94	200.00
492	B72P200	H-ZF2	72	-96.37	288.97	6	200.00
493	B62P200.8	BAK7	62	118.278	97.74	12	200.78
494	B62P200.8	ZF2	62	-97.74	537	4.5	200.78
495	B58P204	Zk3	58	130.02	99.08	9.8	204.09
496	B58P204	Zf3	58	425.264	-99.08	4.2	204.09
497	B57.5P206.8	H-BAK2	57.5	118.163	84.129	11.8	206.80
498	B57.5P206.8	F4	57.5	-84.129	500.12	4.6	206.80
499	B75P210	H-F4	74.5	119.234	119.234	15	210.00
500	B75P210	H-ZF7L	75	-119.23	724.16	10	210.00
501	B9P214	ZF11	9	11.5	7.5	9.6	214.00
502	B9P214	ZF7L	9	-7.5	-10.559	1.5	214.00
503	B12P214.2	H-ZF10	12	26.047	17.067	3.6	214.20
504	B12P214.2	H-LAF62	12	-17.067	-32.315	3	214.20
505	B32P226.6	K9	32	46.77	38.63	10	226.58
506	B32P226.6	F2	32	-128.2	-38.63	4	226.58
507	B62P234	K9	62	138.04	99.08	11.5	234.04
508	B62P234	F6	62	376.7	-99.08	5.5	234.04
509	B32P240	ZF2	32	-85.9	-34.28	2.8	239.81

Bonding Achromatic Lens

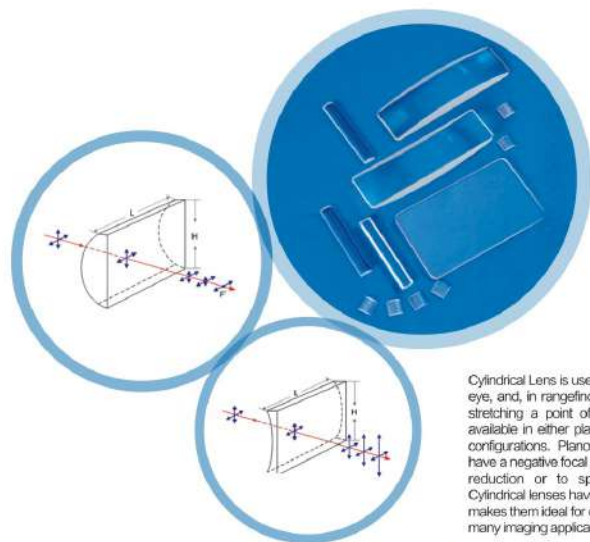
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Serial No.	Parts No.	Material	DIA	R1	R2	TC	F
510	B32P240	K9	32	34.28	34.28	10.8	239.81
511	B34P246.3	ZF3	34	-114.82	-45.08	2.4	246.32
512	B34P246.3	K9	34	45.08	37.41	9	246.32
513	B46P247.8	BAK2	46	116.95	116.95	6.8	247.82
514	B46P247.8	ZF11	46	-116.95	907.8	3.2	247.82
515	B17.5P248	ZK9	17.4	12.972	12.972	8	248.04
516	B17.5P248	ZF7	17.5	-17.989	-12.972	1.5	248.04
517	B46P263.7	K9	46	115.35	72.11	8.5	263.70
518	B46P263.7	ZF1	46	-72.11	579.4	4.5	263.70
519	B68P290	H-K9L	67.9	176.66	124.2	9.8	290.00
520	B68P290	ZF1	67.94	-124.2	406.99	4.4	290.00
521	B60P325	H-BAK2	60	148.082	167.157	11	325.00
522	B60P325	H-ZF2	60	-167.16	3175	5	325.00
523	B60.3P341.9	F3	60.27	711.2	-101.22	6.35	341.90
524	B60.3P341.9	H-K9L	60.17	101.219	169.52	10.668	341.90
525	B63P350	K9	63	193.64	153.46	10	350.03
526	B63P350	F5	63	-153.46	691.8	4.5	350.03
527	B23.5P359.7	ZF52	23.5	-40.36	-19.248	2	359.69
528	B23.5P359.7	ZK3	23.5	19.248	19.248	9.2	359.69
529	B35P365	H-ZF11	35	-92.39	-40.1	2.7	365.00
530	B35P365	H-K9L	38	40.1	38.654	12.8	365.00
531	B17P379.3	ZK9	16.9	16.255	11.695	7.5	379.26
532	B17P379.3	ZF7	17	-28.31	-11.695	2.5	379.26
533	B42P384.3	H-K9L	42	184.5	78.27	5.1	384.35
534	B42P384.3	ZF2	42	-78.27	375	3.58	384.35
535	B58P390.7	K9	58	137.4	122.46	10	390.67
536	B58P390.7	ZF10	58	-122.46	3945	4.5	390.67
537	B72P394.4	K9	72	204.6	170.89	10	394.38
538	B72P394.4	F4	72	-170.89	1003	5.5	394.38
539	B17.5P419	ZF7	17.5	-28.31	-11.695	2	419.08
540	B17.5P419	ZK9	17.5	16.255	11.695	7.4	419.08
541	B49P483.6	K9	49	116.41	65.31	9.5	483.62
542	B49P483.6	F4	49	-116.41	-116.41	3	483.62
543	B68P500	K9	67.9	304.429	213.315	8	500.00

Serial No.	Parts No.	Material	DIA	R1	R2	TC	F
544	B68P500	ZF1	67.9	-213.32	705.555	4	500.00
545	B44P532.7	K9	44	76.56	394.5	5.7	532.71
546	B44P532.7	ZF13	44	-394.5	-180	3	532.71
547	B20.5P560.7	ZK3	20.4	18.03	18.03	7.6	560.70
548	B20.5P560.7	ZF52	20.5	-37.07	-18.03	1.7	560.70
549	B52P566	K9	52	72.6	137.95	10	565.97
550	B52P566	ZF1	52	-137.95	-137.95	2	565.97
551	B22P591	H-FK61	21.8	45.544	52.73	5.3	591.00
552	B22P591	H-LAF4	22	-52.73	-152.89	5.3	591.00
553	B46P631.7	K9	46	92.68	391	5.5	631.70
554	B46P631.7	ZF12	46	-391	-219.42	2.9	631.70
555	B46P653.7	K9	46	178.65	59.38	9.6	653.73
556	B46P653.7	ZF2	46	-178.65	-98.82	2.6	653.73
557	B66P657	H-K9L	65.5	69.308	212.783	11.8	657.00
558	B66P657	H-ZF7LA	66	-212.78	-161.64	2	657.00
559	B57P723	H-K9L	57	132.56	88.014	10	723.00
560	B57P723	H-ZF2	57	-88.014	-826.09	3.1	723.00
561	B77.5P765.2	K9	77.5	110.976	203.91	14.5	765.24
562	B77.5P765.2	F4	77.5	-203.91	-203.91	5	765.24
563	B87P797.9	K9L	87	421.733	144.585	13	797.85
564	B87P797.9	ZF1	87	-421.73	-306.97	6	797.85
565	B63P800	H-BAK8	63	548.847	339.583	5	800.00
566	B63P800	H-ZF10	63	-339.58	1248.95	5	800.00
567	B51.5P900.8	H-K9L	51.5	147.63	63.83	9.2	900.80
568	B51.5P900.8	H-ZF2	51.5	-63.83	1E+14	2.5	900.80
569	B16P954	H-LAK11	16	19.235	19.235	4.6	954.00
570	B16P954	H-ZF5	16	-19.235	-19.657	6.1	954.00
571	B13P1123	H-QF50	13	-19.724	-19.724	4.7	1123.00
572	B13P1123	H-ZK7	13	19.724	25.505	6	1123.00
573	B13P1123	H-QF50	13	-19.724	-19.724	4.7	1123.00
574	B13P1123	H-ZK7	13	19.724	25.505	6	1123.00
575	B46P4908	H-ZF6	46	168.14	-42.27	3	4908.00
576	B46P4908	H-QK3	45.8	42.27	244.89	9.34	4908.00

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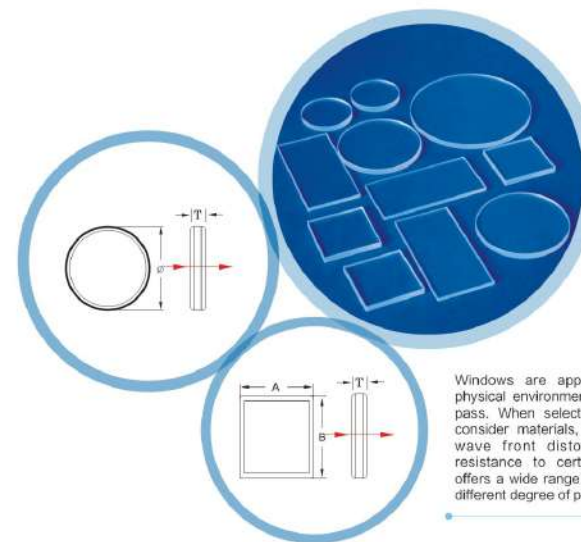
Bonding Achromatic Lens



Cylindrical Lens is used to correct astigmatism in the eye, and, in rangefinders, to produce astigmatism, stretching a point of light into a line. They are available in either plano concave or plano convex configurations. Plano-Concave Cylindrical lenses have a negative focal length and are used for image reduction or to spread light. Plano-Convex Cylindrical lenses have a positive focal length, which makes them ideal for collecting and focusing light for many imaging applications.

Parametres

Material:	H-K9L/UV Fused silica
Focal Length Tolerance:	± 1%
Diameter Tolerance:	0/-0.1
Thickness Tolerance:	± 0.1
Scratch/Dig:	60/40
Eccentricity:	3'
Clear Aperture:	>90%
Coating:	AR OR BBAR
Designed Wavelength:	632.8nm



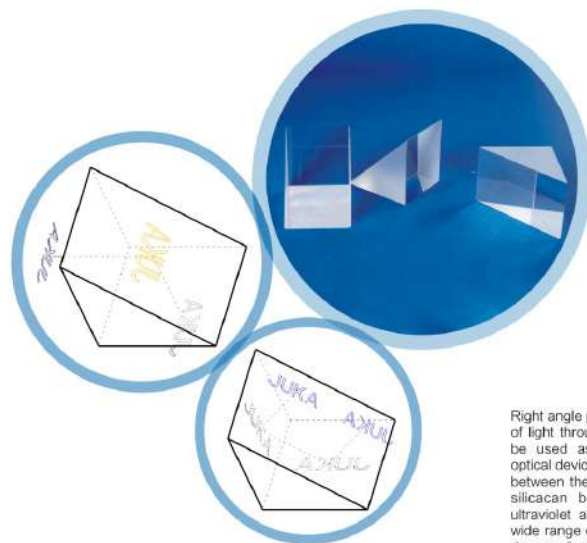
Windows are applied to isolate different physical environments while allowing light to pass. When selecting windows you should consider materials, transmission, scattering, wave front distortion, parallelism and resistance to certain environment. JUKA offers a wide range of different materials and different degree of precision windows.

Parametres

Material	Bk7 and Fused silica typically, Visible optical glass, Infrared optical glass, Colored glass.		
Tolerances	Low precision	Standard Precision	High precision
Glass Quality	nd	± 0.001	± 0.0005
	vd	± 0.8%	± 0.3%
Dimension Tolerance (mm)	± 0.20	± 0.10	+0.01/-0.01
Thickness Tolerance (mm)	± 0.20	± 0.1	± 0.005
Scratch-Dig	V (80-50)	IV (60-40)	II (20-10)
Wave front Distortion 632.8nm	λ per 25mm	λ /4per 25mm	λ /20 per 25mm
Clear Aperture	80%	90%	100%
Parallelism (arc min)	3-5 minutes	1 minutes	3 second
Bevel	0.3 ± 0.20mmx45° or upon requirement		
Coating	Coating may be available by custom order		

Right Angle prisms

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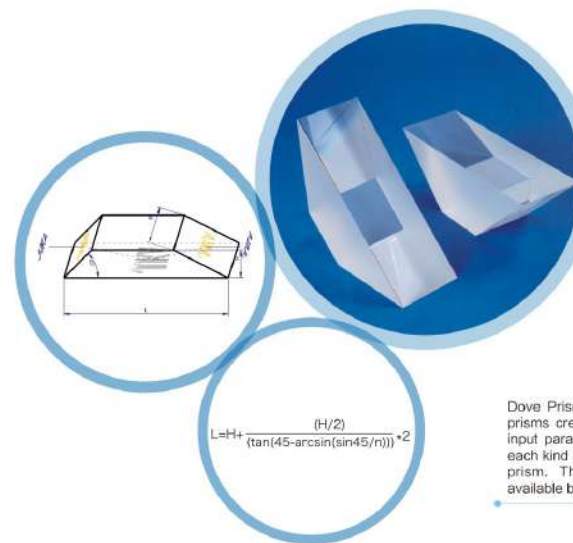
Right angle prisms are used to deflect a beam of light through 90 or 180 degrees. This can be used as component to create various optical devices. BK-7 can be used for a range between the visible and infrared light, fused-silica can be used for a range between ultraviolet and infrared light, JUKA offers a wide range of different materials and different degree of precision prisms.

Parametres

Beam Deflection Angle:	90° ± 3', 180° ± 5'
Material:	H-K9L/UV Fused Silica
Diameter Tolerance:	0/-0.1
Surface Flatness:	λ /5
Scratch/Dig	40/20
Clear Aperture:	>90%
Bevel:	0.2 ± 45°
Coating:	AR OR BBAR
Lacquer:	GT-7or equivalent

Dove prisms

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$$L = H + \frac{(H/2)}{(\tan(45 - \arcsin(\sin 45/n)))} \cdot 2$$

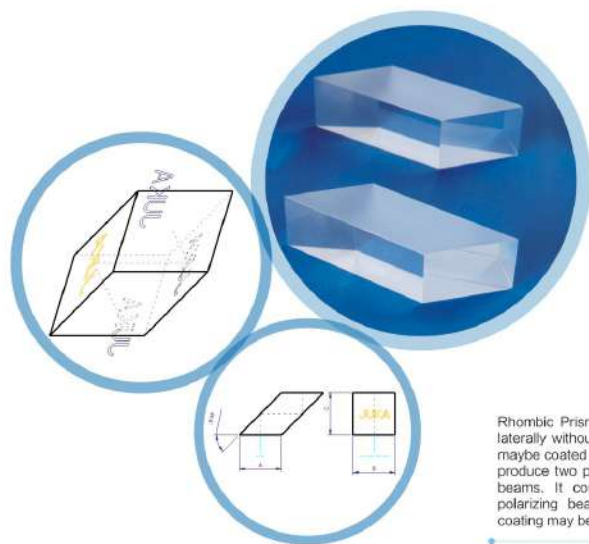
Dove Prisms ideal for image rotation. Dove prisms create an image inversion in a beam input parallel to the base. JUKA can supply each kind size and each kind dimension Dove prism. The coating or painting may be available by custom orders.

Parametres

Angle Tolerance:	± 5'
Material:	H-K9L/UV Fused Silica
Diameter Tolerance:	0/-0.1
Surface Flatness:	λ /5
Scratch/Dig	40/20
Clear Aperture:	>90%
Bevel:	0.2 ± 45°
Coating:	AR OR BBAR
Lacquer:	GT-7or equivalent

Rhombic prisms

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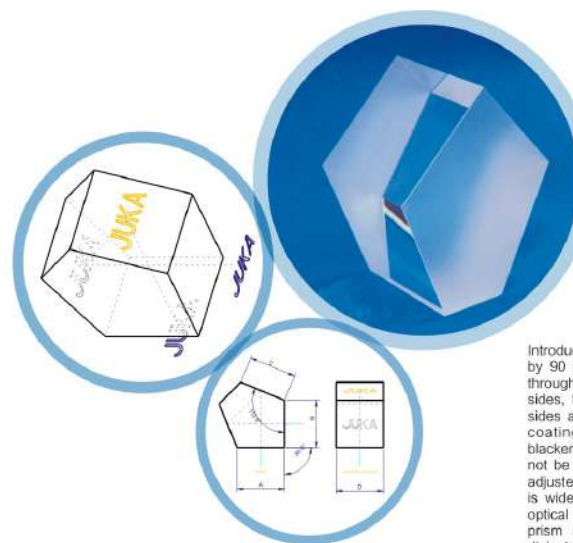
Rhombic Prisms are used to display a beam laterally without changing its direction. They may be coated to transmit part of the beam and produce two parallel and displaced emerging beams. It could be coated to produce a polarizing beam separator. Dimension and coating may be available by custom orders.

Parametres

Angle Tolerance;	$\pm 5'$
Material;	H-K9L/UV Fused Silica
Diameter Tolerance;	0/-0.1
Surface Flatness;	$\lambda/5$
Scratch/Dig	40/20
Clear Aperture;	>90%
Bevelling;	$0.2 \pm 45^\circ$
Coating;	AR OR BBAR
Lacquer;	GT-7 or equivalent

Penta prisms

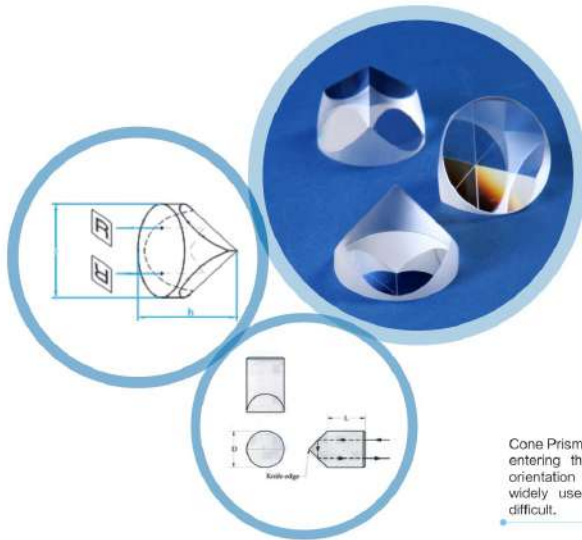
51



Introduction An incident beam can be deviated by 90 degrees without inverting or reversing through a Penta prism. Penta prism has five sides, four of them polished. Two reflective sides are coated with metal or dielectric HR coating and these two sides can be blackened. The deviation angle of 90deg will not be changed if the penta prism is slightly adjusted, this will be convenient to install it. It is widely used in laser level, alignment and optical tooling. The reflecting surfaces of this prism must be coated with a metallic or dielectric reflective coating.

Parametres

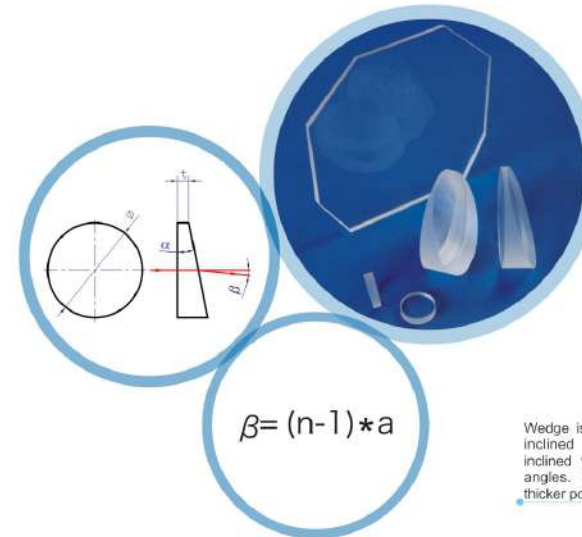
Angle Tolerance;	$\pm 5'$
Material;	H-K9L/UV Fused Silica
Diameter Tolerance;	0/-0.1
Surface Flatness;	$\lambda/5$
Scratch/Dig	60/40
Clear Aperture;	>90%
Bevelling;	$0.2 \pm 45^\circ$
Coating;	AR OR BBAR
Lacquer;	GT-7 or equivalent



Cone Prism is always used to reflect the beam entering the prism face, regardless of its orientation to the beam. Corner cubes are widely used where precision alignment is difficult.

Parametres

Material	Bk7 Grade A optical glass
Dimension Tolerance	+0.0/-0.2 mm
Clear Aperture	>80%
Deviation	Up to 180° ± 5 arc seconds
Flatness	$\lambda/4$ @632.8nm for big surface, $\lambda/10$ @632.8nm for small surfaces
Wavefront Distortion	$\lambda/2$ @632.8nm
Surface Quality	60/40 scratch and dig
Coating	None, available



$$\beta = (n-1) * a$$

Wedge is an optical element having plane-inclined surfaces, usually the faces are inclined toward one another at very small angles. Wedges divert light toward their thicker portions.

Parametres

Material	Bk7 or UV Fused Silica
Design Wavelength	BK7: 632.8nm, n=1.515@632.8nm UVFS: 355nm, n=1.476@355nm
Dimension Tolerance	+0.0/-0.2mm
Thickness	3mm on the thinnest edge
Wedge Angle Tolerance	<3 arc minutes
Flatness	< $\lambda/4$ @632.8nm
Surface Quality	60/40 scratch and dig
Deviation Angle	From 1deg to 10deg
Coating	None, Available