

## BK-7 Plano Convex Lenses

- Simple general use positive lenses
- Focal lengths from 8.0 to 5000mm
- Anti-Reflection coatings available
- Diameters from 5.0 to 100mm
- See Micro Optics for additional products



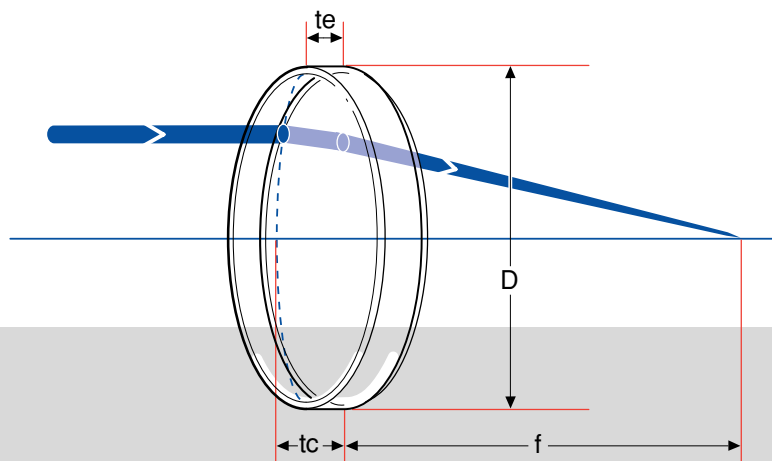
These are simple lenses having a flat surface on one side and a spherical surface on the other. They are also very close to the form which minimizes spherical aberration for infinite conjugate applications.

Our glass lenses are made from the highest grade of BK7 optical glass. We have a vast range of different diameters and focal lengths. The lenses listed here are standards. Please call if you do not see the lens you need. We have both larger and smaller lenses and many other diameters to choose from. However, we do try to keep these standards available for quick delivery. For very small lenses see the section on microlenses.

These lenses are offered uncoated or with our A55 broadband visible (425-675nm) multilayer Anti-Reflection coating. In addition we offer a wide range of standard Anti-Reflection coatings for other wavelengths.

### Specifications & Tolerances

Focal length: $\pm 1\%$ (Diameter $\geq 10\text{mm}$ )	Diameter: $\leq 60\text{mm} +0, -0.10\text{mm}$
$\pm 2\%$ (Diameter $< 10\text{mm}$ )	$= 80\text{mm} +0, -0.15\text{mm}$
Thickness: $\pm 0.15\text{mm}$	$= 100\text{mm} +0, -0.20\text{mm}$
Surface Quality: 20-10	Material: BK7 grade A
Clear Aperture: $>90\%$	Design Wavelength: 546.1nm
Coating: Optional broadband Anti-Reflection 425-675nm (for other wavelengths see pages 18 and 19)	



PLANO CONVEX LENS

#### Spherical Lenses

Cylindrical Lenses

Lens Kits

Achromatic Doublets

Multi-Element

Micro Optics

Mirrors

Prisms

Substrates & Windows

Beamsplitters

Polarizers

Filter & Apertures

*Plano convex lenses are essentially best-form lenses when used at infinite or near-infinite conjugate ratios. With their positive focal lengths they will converge incident collimated light and form both real and virtual images. Plano convex lenses are often used in simple telescopes, collimators, and magnification or condensing systems.*

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## BK-7 Plano Convex Lenses

UNCOATED

AR COATED  
425-675nm

D (mm)	f (mm)	tc (mm)	te (mm)	fb (mm)	r (mm)	Centration (arcmin)	Price	PART NUMBER	Price	PART NUMBER
5.0	8.0	2.3	1.4	6.5	4.15	≤ 3	\$ 16.00	011-0220	\$ 35.00	011-0220-A55
5.0	9.0	2.1	1.4	7.6	4.67	≤ 3	\$ 16.00	011-0225	\$ 35.00	011-0225-A55
5.0	10.0	2.0	1.3	8.7	5.19	≤ 3	\$ 16.00	011-0230	\$ 35.00	011-0230-A55
5.0	12.0	1.8	1.2	10.8	6.23	≤ 3	\$ 15.00	011-0250	\$ 34.00	011-0250-A55
5.0	15.0	1.6	1.2	13.9	7.79	≤ 3	\$ 15.00	011-0260	\$ 34.00	011-0260-A55
5.0	20.0	1.4	1.1	19.1	10.38	≤ 3	\$ 15.00	011-0270	\$ 34.00	011-0270-A55
5.0	25.0	1.4	1.1	24.1	12.98	≤ 3	\$ 15.00	011-0280	\$ 34.00	011-0280-A55
5.0	30.0	1.3	1.1	29.1	15.57	≤ 3	\$ 15.00	011-0290	\$ 34.00	011-0290-A55
6.0	8.0	2.3	1.0	6.5	4.15	≤ 3	\$ 17.00	011-0330	\$ 36.00	011-0330-A55
6.0	9.0	2.1	1.0	7.6	4.67	≤ 3	\$ 17.00	011-0340	\$ 36.00	011-0340-A55
6.0	10.0	2.0	1.0	8.7	5.19	≤ 3	\$ 17.00	011-0350	\$ 36.00	011-0350-A55
6.0	12.0	1.8	1.0	10.8	6.25	≤ 3	\$ 17.00	011-0450	\$ 36.00	011-0450-A55
6.0	15.0	1.6	1.0	13.9	7.79	≤ 3	\$ 16.50	011-0370	\$ 35.50	011-0370-A55
6.0	20.0	1.4	1.0	19.1	10.38	≤ 3	\$ 16.50	011-0380	\$ 35.50	011-0380-A55
6.0	25.0	1.4	1.0	24.1	12.98	≤ 3	\$ 16.50	011-0460	\$ 35.50	011-0460-A55
6.0	30.0	1.3	1.0	29.1	15.57	≤ 3	\$ 16.50	011-0440	\$ 35.50	011-0440-A55
7.0	10.0	3.4	2.0	7.8	5.19	≤ 3	\$ 17.00	011-0461	\$ 36.00	011-0461-A55
7.0	12.0	3.0	1.9	10.1	6.23	≤ 3	\$ 17.00	011-0462	\$ 36.00	011-0462-A55
7.0	15.0	2.6	1.8	13.3	7.79	≤ 3	\$ 16.50	011-0463	\$ 35.50	011-0463-A55
7.0	20.0	2.3	1.7	18.5	10.38	≤ 3	\$ 16.50	011-0464	\$ 35.50	011-0464-A55
7.0	25.0	2.1	1.7	23.6	12.98	≤ 3	\$ 16.00	011-0465	\$ 35.00	011-0465-A55
7.0	30.0	2.0	1.6	28.7	15.57	≤ 3	\$ 16.00	011-0466	\$ 35.00	011-0466-A55
7.0	40.0	1.9	1.6	38.8	20.76	≤ 3	\$ 16.00	011-0467	\$ 35.00	011-0467-A55
7.0	50.0	1.8	1.6	48.8	25.95	≤ 3	\$ 16.00	011-0468	\$ 35.00	011-0468-A55
8.0	10.0	3.4	1.5	7.8	5.19	≤ 3	\$ 17.50	011-0470	\$ 36.50	011-0470-A55
8.0	12.0	3.0	1.5	10.1	6.23	≤ 3	\$ 17.50	011-0480	\$ 36.50	011-0480-A55
8.0	15.0	2.6	1.5	13.3	7.79	≤ 3	\$ 17.50	011-0490	\$ 36.50	011-0490-A55
8.0	20.0	2.3	1.5	18.5	10.38	≤ 3	\$ 17.00	011-0550	\$ 36.00	011-0550-A55
8.0	25.0	2.1	1.5	23.6	12.98	≤ 3	\$ 17.00	011-0560	\$ 36.00	011-0560-A55
8.0	30.0	2.0	1.5	28.7	15.57	≤ 3	\$ 17.00	011-0570	\$ 36.00	011-0570-A55
8.0	40.0	1.9	1.5	38.8	20.76	≤ 3	\$ 17.00	011-0580	\$ 36.00	011-0580-A55
8.0	50.0	1.8	1.5	48.8	25.95	≤ 3	\$ 17.00	011-0590	\$ 36.00	011-0590-A55
10.0	15.0	3.8	2.0	12.5	7.79	≤ 1	\$ 18.00	011-0660	\$ 37.00	011-0660-A55
10.0	20.0	3.3	2.0	17.8	10.38	≤ 1	\$ 18.00	011-0670	\$ 37.00	011-0670-A55
10.0	25.0	3.0	2.0	23.0	12.98	≤ 1	\$ 16.50	011-0680	\$ 35.50	011-0680-A55
10.0	30.0	2.8	2.0	28.1	15.57	≤ 1	\$ 16.50	011-0690	\$ 35.50	011-0690-A55
10.0	40.0	2.6	2.0	38.3	20.76	≤ 1	\$ 16.50	011-0770	\$ 35.50	011-0770-A55
10.0	50.0	2.5	2.0	48.4	25.95	≤ 1	\$ 16.50	011-0780	\$ 35.50	011-0780-A55
10.0	60.0	2.4	2.0	58.4	31.14	≤ 1	\$ 16.50	011-0790	\$ 35.50	011-0790-A55
10.0	70.0	2.3	2.0	68.5	36.33	≤ 1	\$ 16.50	011-0870	\$ 35.50	011-0870-A55
10.0	80.0	2.3	2.0	78.5	41.52	≤ 1	\$ 16.50	011-0890	\$ 35.50	011-0890-A55
10.0	90.0	2.3	2.0	88.5	46.71	≤ 1	\$ 16.50	011-0900	\$ 35.50	011-0900-A55
10.0	100.0	2.2	2.0	98.5	51.90	≤ 1	\$ 16.50	011-0990	\$ 35.50	011-0990-A55
12.7	20.0	4.2	2.0	17.2	10.38	≤ 1	\$ 18.50	011-1110	\$ 38.50	011-1110-A55
12.7	25.0	3.7	2.0	22.6	12.98	≤ 1	\$ 18.50	011-1120	\$ 38.50	011-1120-A55
12.7	30.0	3.4	2.0	27.8	15.57	≤ 1	\$ 17.50	011-1125	\$ 37.50	011-1125-A55
12.7	40.0	3.0	2.0	38.0	20.76	≤ 1	\$ 17.50	011-1130	\$ 37.50	011-1130-A55
12.7	50.0	2.8	2.0	48.4	25.95	≤ 1	\$ 17.50	011-1140	\$ 37.50	011-1140-A55
12.7	60.0	2.7	2.0	58.4	31.14	≤ 1	\$ 17.50	011-1150	\$ 37.50	011-1150-A55
12.7	70.0	2.6	2.0	68.5	36.33	≤ 1	\$ 17.50	011-1155	\$ 37.50	011-1155-A55
12.7	80.0	2.5	2.0	78.5	41.52	≤ 1	\$ 17.50	011-1160	\$ 37.50	011-1160-A55
12.7	100.0	2.4	2.0	98.6	51.90	≤ 1	\$ 17.50	011-1170	\$ 37.50	011-1170-A55

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## BK-7 Plano Convex Lenses (continued)

UNCOATED

AR COATED  
425-675nm

D (mm)	f (mm)	tc (mm)	te (mm)	fb (mm)	r (mm)	Centration (arcmin)	Price	PART NUMBER	Price	PART NUMBER
15.0	20.0	5.2	2.0	16.6	10.38	≤ 1	\$ 19.50	011-1180	\$ 41.50	011-1180-A55
15.0	25.0	4.4	2.0	22.1	12.98	≤ 1	\$ 19.50	011-1190	\$ 41.50	011-1190-A55
15.0	30.0	3.9	2.0	27.4	15.57	≤ 1	\$ 19.50	011-1220	\$ 41.50	011-1220-A55
15.0	40.0	3.4	2.0	37.8	20.76	≤ 1	\$ 18.00	011-1230	\$ 40.00	011-1230-A55
15.0	50.0	3.1	2.0	48.0	25.95	≤ 1	\$ 18.00	011-1240	\$ 40.00	011-1240-A55
15.0	60.0	2.9	2.0	58.1	31.14	≤ 1	\$ 18.00	011-1250	\$ 40.00	011-1250-A55
15.0	70.0	2.8	2.0	68.2	36.33	≤ 1	\$ 17.50	011-1255	\$ 39.50	011-1255-A55
15.0	80.0	2.7	2.0	78.2	41.52	≤ 1	\$ 17.50	011-1260	\$ 39.50	011-1260-A55
15.0	90.0	2.6	2.0	88.3	46.71	≤ 1	\$ 17.50	011-1265	\$ 39.50	011-1265-A55
15.0	100.0	2.5	2.0	98.3	51.90	≤ 1	\$ 17.50	011-1270	\$ 39.50	011-1270-A55
15.0	120.0	2.5	2.0	118.4	62.28	≤ 1	\$ 17.50	011-1275	\$ 39.50	011-1275-A55
15.0	150.0	2.4	2.0	148.4	77.85	≤ 1	\$ 17.50	011-1280	\$ 39.50	011-1280-A55
20.0	25.0	6.7	2.0	20.6	12.98	≤ 1	\$ 20.00	011-1290	\$ 44.00	011-1290-A55
20.0	30.0	5.6	2.0	26.3	15.57	≤ 1	\$ 20.00	011-1330	\$ 44.00	011-1330-A55
20.0	40.0	4.6	2.0	37.0	20.76	≤ 1	\$ 19.00	011-1340	\$ 43.00	011-1340-A55
20.0	50.0	4.0	2.0	47.4	25.95	≤ 1	\$ 19.00	011-1350	\$ 43.00	011-1350-A55
20.0	60.0	3.6	2.0	57.6	31.14	≤ 1	\$ 19.00	011-1360	\$ 43.00	011-1360-A55
20.0	70.0	3.4	2.0	67.8	36.33	≤ 1	\$ 18.50	011-1365	\$ 42.50	011-1365-A55
20.0	80.0	3.2	2.0	77.9	41.52	≤ 1	\$ 18.50	011-1370	\$ 42.50	011-1370-A55
20.0	90.0	3.1	2.0	88.0	46.71	≤ 1	\$ 18.50	011-1375	\$ 42.50	011-1375-A55
20.0	100.0	3.0	2.0	98.0	51.90	≤ 1	\$ 18.50	011-1380	\$ 42.50	011-1380-A55
20.0	120.0	2.8	2.0	118.2	62.28	≤ 1	\$ 18.50	011-1390	\$ 42.50	011-1390-A55
20.0	150.0	2.6	2.0	148.3	77.85	≤ 1	\$ 18.50	011-1440	\$ 42.50	011-1440-A55
20.0	170.0	2.6	2.0	168.2	88.23	≤ 1	\$ 18.50	011-1445	\$ 42.50	011-1445-A55
20.0	200.0	2.5	2.0	198.4	103.80	≤ 1	\$ 18.50	011-1450	\$ 42.50	011-1450-A55
25.0	30.0	8.3	2.0	24.5	15.57	≤ 1	\$ 21.00	011-1460	\$ 45.00	011-1460-A55
25.0	35.0	7.0	2.0	30.4	18.17	≤ 1	\$ 21.00	011-1470	\$ 45.00	011-1470-A55
25.0	40.0	6.2	2.0	36.0	20.76	≤ 1	\$ 21.00	011-1480	\$ 45.00	011-1480-A55
25.0	50.0	5.2	2.0	46.6	25.95	≤ 1	\$ 20.50	011-1490	\$ 44.50	011-1490-A55
25.0	60.0	4.6	2.0	57.0	31.14	≤ 1	\$ 20.50	011-1550	\$ 44.50	011-1550-A55
25.0	70.0	4.2	2.0	67.2	36.33	≤ 1	\$ 20.50	011-1555	\$ 44.50	011-1555-A55
25.0	80.0	3.9	2.0	77.4	41.52	≤ 1	\$ 20.00	011-1560	\$ 44.00	011-1560-A55
25.0	90.0	3.7	2.0	87.6	46.71	≤ 1	\$ 20.00	011-1565	\$ 44.00	011-1565-A55
25.0	100.0	3.5	2.0	97.7	51.90	≤ 1	\$ 20.00	011-1570	\$ 44.00	011-1570-A55
25.0	120.0	3.3	2.0	117.8	62.28	≤ 1	\$ 20.00	011-1580	\$ 44.00	011-1580-A55
25.0	150.0	3.0	2.0	148.0	77.85	≤ 1	\$ 20.00	011-1590	\$ 44.00	011-1590-A55
25.0	170.0	2.9	2.0	168.1	88.23	≤ 1	\$ 20.00	011-1610	\$ 44.00	011-1610-A55
25.0	200.0	2.8	2.0	198.2	103.80	≤ 1	\$ 20.00	011-1660	\$ 44.00	011-1660-A55
25.0	220.0	2.7	2.0	218.2	114.18	≤ 1	\$ 20.00	011-1665	\$ 44.00	011-1665-A55
25.0	250.0	2.6	2.0	248.3	129.75	≤ 1	\$ 20.00	011-1670	\$ 44.00	011-1670-A55
25.4	30.0	8.3	1.7	24.5	15.57	≤ 1	\$ 21.00	011-1675	\$ 47.00	011-1675-A55
25.4	35.0	7.0	1.8	30.4	18.17	≤ 1	\$ 21.00	011-1677	\$ 47.00	011-1677-A55
25.4	40.0	6.2	1.9	36.0	20.76	≤ 1	\$ 21.00	011-1680	\$ 47.00	011-1680-A55
25.4	50.0	5.2	1.9	46.6	25.95	≤ 1	\$ 21.00	011-1690	\$ 47.00	011-1690-A55
25.4	60.0	4.6	1.9	57.0	31.14	≤ 1	\$ 21.00	011-1770	\$ 47.00	011-1770-A55
25.4	70.0	4.2	1.9	67.2	36.33	≤ 1	\$ 21.00	011-1775	\$ 47.00	011-1775-A55
25.4	80.0	3.9	1.9	77.4	41.52	≤ 1	\$ 21.00	011-1780	\$ 47.00	011-1780-A55
25.4	90.0	3.7	1.9	87.6	46.71	≤ 1	\$ 21.00	011-1785	\$ 47.00	011-1785-A55
25.4	100.0	3.5	1.9	97.7	51.90	≤ 1	\$ 21.00	011-1790	\$ 47.00	011-1790-A55
25.4	120.0	3.3	2.0	117.8	62.28	≤ 1	\$ 21.00	011-1880	\$ 47.00	011-1880-A55
25.4	150.0	3.0	2.0	148.0	77.85	≤ 1	\$ 21.00	011-1890	\$ 47.00	011-1890-A55
25.4	170.0	2.9	2.0	168.1	88.23	≤ 1	\$ 21.00	011-1892	\$ 47.00	011-1892-A55
25.4	200.0	2.8	2.0	198.2	103.80	≤ 1	\$ 21.00	011-1895	\$ 47.00	011-1895-A55
25.4	250.0	2.6	2.0	248.3	129.75	≤ 1	\$ 22.50	011-1990	\$ 47.00	011-1990-A55
25.4	300.0	2.5	2.0	298.4	155.70	≤ 3	\$ 23.00	011-1992	\$ 47.00	011-1992-A55

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**BK-7 Plano Convex Lenses  
(continued)**

**UNCOATED**

**AR COATED  
425-675nm**

	D (mm)	f (mm)	tc (mm)	te (mm)	fb (mm)	r (mm)	Centration (arcmin)	Price	PART NUMBER	Price	PART NUMBER
	25.4	500.0	2.4	2.0	498.4	259.50	≤ 3	\$ 23.00	011-1996	\$ 47.00	011-1996-A55
	25.4	700.0	2.2	2.0	698.5	363.30	≤ 3	\$ 23.00	011-1999	\$ 47.00	011-1999-A55
	25.4	1000.0	2.2	2.0	998.5	519.00	≤ 3	\$ 23.00	011-2004	\$ 47.00	011-2004-A55
	30.0	35.0	9.9	2.0	28.5	18.17	≤ 1	\$ 23.00	011-2220	\$ 49.00	011-2220-A55
	30.0	40.0	8.4	2.0	34.5	20.76	≤ 1	\$ 23.00	011-2230	\$ 49.00	011-2230-A55
	30.0	50.0	6.8	2.0	45.5	25.95	≤ 1	\$ 23.00	011-2240	\$ 49.00	011-2240-A55
	30.0	60.0	5.9	2.0	56.1	31.14	≤ 1	\$ 23.00	011-2250	\$ 49.00	011-2250-A55
	30.0	70.0	5.2	2.0	66.5	36.33	≤ 1	\$ 23.00	011-2260	\$ 49.00	011-2260-A55
	30.0	80.0	4.8	2.0	76.8	41.52	≤ 1	\$ 23.00	011-2270	\$ 49.00	011-2270-A55
	30.0	90.0	4.5	2.0	87.1	46.71	≤ 1	\$ 23.00	011-2275	\$ 49.00	011-2275-A55
	30.0	100.0	4.2	2.0	97.2	51.90	≤ 1	\$ 23.00	011-2280	\$ 49.00	011-2280-A55
	30.0	120.0	3.8	2.0	117.5	62.28	≤ 1	\$ 23.00	011-2290	\$ 49.00	011-2290-A55
	30.0	150.0	3.5	2.0	147.7	77.85	≤ 1	\$ 23.00	011-2330	\$ 49.00	011-2330-A55
	30.0	170.0	3.3	2.0	167.8	88.23	≤ 1	\$ 23.00	011-2335	\$ 49.00	011-2335-A55
	30.0	200.0	3.1	2.0	198.0	103.80	≤ 1	\$ 23.00	011-2340	\$ 49.00	011-2340-A55
	30.0	220.0	3.0	2.0	218.0	114.18	≤ 1	\$ 23.00	011-2345	\$ 49.00	011-2345-A55
	30.0	250.0	2.9	2.0	248.1	129.75	≤ 1	\$ 23.00	011-2350	\$ 49.00	011-2350-A55
	30.0	300.0	2.7	2.0	298.2	155.70	≤ 1	\$ 23.00	011-2352	\$ 49.00	011-2352-A55
	30.0	350.0	2.6	2.0	348.3	181.65	≤ 3	\$ 23.00	011-2354	\$ 49.00	011-2354-A55
	30.0	400.0	2.5	2.0	398.2	207.60	≤ 3	\$ 23.00	011-2356	\$ 49.00	011-2356-A55
	30.0	450.0	2.5	2.0	448.4	233.55	≤ 3	\$ 23.00	011-2358	\$ 49.00	011-2358-A55
	30.0	500.0	2.4	2.0	498.4	259.50	≤ 3	\$ 23.00	011-2360	\$ 49.00	011-2360-A55
	30.0	600.0	2.4	2.0	598.4	311.40	≤ 3	\$ 23.00	011-2362	\$ 49.00	011-2362-A55
	30.0	700.0	2.3	2.0	698.5	363.30	≤ 3	\$ 23.00	011-2364	\$ 49.00	011-2364-A55
	30.0	800.0	2.3	2.0	798.5	415.20	≤ 3	\$ 23.00	011-2366	\$ 49.00	011-2366-A55
	30.0	900.0	2.2	2.0	898.5	467.10	≤ 3	\$ 24.00	011-2368	\$ 50.00	011-2368-A55
	30.0	1000.0	2.2	2.0	998.5	519.00	≤ 3	\$ 24.00	011-2370	\$ 50.00	011-2370-A55
	30.0	1200.0	2.2	2.0	1198.6	622.80	≤ 3	\$ 24.00	011-2372	\$ 50.00	011-2372-A55
	30.0	1500.0	2.1	2.0	1498.6	778.50	≤ 3	\$ 24.00	011-2374	\$ 50.00	011-2374-A55
	30.0	2000.0	2.1	2.0	1998.6	1038.00	≤ 3	\$ 24.00	011-2376	\$ 50.00	011-2376-A55
	30.0	2500.0	2.1	2.0	2498.6	1297.50	≤ 3	\$ 24.00	011-2378	\$ 50.00	011-2378-A55
	30.0	3000.0	2.1	2.0	2998.6	1557.00	≤ 3	\$ 24.00	011-2380	\$ 50.00	011-2380-A55
	30.0	4000.0	2.1	2.0	3998.6	2076.00	≤ 3	\$ 24.00	011-2382	\$ 50.00	011-2382-A55
	30.0	5000.0	2.0	2.0	4998.6	2595.00	≤ 3	\$ 24.00	011-2384	\$ 50.00	011-2384-A55
	38.1	50.0	10.3	2.0	43.3	25.95	≤ 1	\$ 32.50	011-2440	\$ 61.00	011-2440-A55
	38.1	60.0	8.5	2.0	54.5	31.14	≤ 1	\$ 32.50	011-2450	\$ 61.00	011-2450-A55
	38.1	80.0	6.6	2.0	75.8	41.52	≤ 1	\$ 30.00	011-2460	\$ 58.00	011-2460-A55
	38.1	100.0	5.6	2.0	96.5	51.90	≤ 1	\$ 30.50	011-2470	\$ 59.00	011-2470-A55
	38.1	120.0	5.0	2.0	117.0	62.28	≤ 1	\$ 30.50	011-2480	\$ 59.00	011-2480-A55
	40.0	50.0	11.4	2.0	42.5	25.95	≤ 1	\$ 34.00	011-2490	\$ 62.00	011-2490-A55
	40.0	60.0	9.3	2.0	53.9	31.14	≤ 1	\$ 34.00	011-2550	\$ 62.00	011-2550-A55
	40.0	70.0	8.0	2.0	64.7	36.33	≤ 1	\$ 41.00	011-2560	\$ 69.00	011-2560-A55
	40.0	80.0	7.1	2.0	75.3	41.52	≤ 1	\$ 41.00	011-2570	\$ 69.00	011-2570-A55
	40.0	90.0	6.5	2.0	85.7	46.71	≤ 1	\$ 29.50	011-2575	\$ 58.00	011-2575-A55
	40.0	100.0	6.0	2.0	96.0	51.90	≤ 1	\$ 29.50	011-2580	\$ 58.00	011-2580-A55
	40.0	120.0	5.3	2.0	116.5	62.28	≤ 1	\$ 29.50	011-2590	\$ 58.00	011-2590-A55
	40.0	150.0	4.6	2.0	147.0	77.85	≤ 1	\$ 29.50	011-2660	\$ 58.00	011-2660-A55
	40.0	170.0	4.3	2.0	167.2	88.23	≤ 1	\$ 29.50	011-2665	\$ 58.00	011-2665-A55
	40.0	200.0	3.9	2.0	197.4	103.80	≤ 1	\$ 29.50	011-2670	\$ 58.00	011-2670-A55
	40.0	220.0	3.8	2.0	217.5	114.18	≤ 1	\$ 29.50	011-2675	\$ 58.00	011-2675-A55
	40.0	250.0	3.6	2.0	247.7	129.75	≤ 1	\$ 29.50	011-2680	\$ 58.00	011-2680-A55
	40.0	300.0	3.3	2.0	297.7	155.70	≤ 1	\$ 29.50	011-2682	\$ 58.00	011-2682-A55
	40.0	350.0	3.1	2.0	348.0	181.65	≤ 1	\$ 29.50	011-2683	\$ 58.00	011-2683-A55
	40.0	400.0	3.0	2.0	398.0	207.60	≤ 1	\$ 29.50	011-2685	\$ 58.00	011-2685-A55
	40.0	450.0	2.9	2.0	448.1	233.55	≤ 3	\$ 29.50	011-2687	\$ 58.00	011-2687-A55

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## BK-7 Plano Convex Lenses (continued)

UNCOATED

AR COATED  
425-675nm

D (mm)	f (mm)	tc (mm)	te (mm)	fb (mm)	r (mm)	Centration (arcmin)	Price	PART NUMBER	Price	PART NUMBER
40.0	500.0	2.8	2.0	498.2	259.50	≤ 3	\$ 29.50	011-2690	\$ 58.00	011-2690-A55
40.0	600.0	2.6	2.0	598.3	311.40	≤ 3	\$ 29.50	011-2710	\$ 58.00	011-2710-A55
40.0	700.0	2.6	2.0	698.3	363.30	≤ 3	\$ 29.50	011-2720	\$ 58.00	011-2720-A55
40.0	800.0	2.5	2.0	798.4	415.20	≤ 3	\$ 29.50	011-2770	\$ 58.00	011-2770-A55
40.0	900.0	2.4	2.0	898.4	467.10	≤ 3	\$ 29.50	011-2775	\$ 58.00	011-2775-A55
40.0	1000.0	2.4	2.0	998.4	519.00	≤ 3	\$ 29.50	011-2780	\$ 58.00	011-2780-A55
50.0	70.0	13.0	3.0	61.5	36.33	≤ 1	\$ 34.00	011-2870	\$ 65.00	011-2870-A55
50.0	80.0	11.4	3.0	72.5	41.52	≤ 1	\$ 34.00	011-2880	\$ 65.00	011-2880-A55
50.0	90.0	10.3	3.0	83.2	46.71	≤ 1	\$ 34.00	011-2885	\$ 65.00	011-2885-A55
50.0	100.0	9.4	3.0	93.8	51.90	≤ 1	\$ 34.00	011-2890	\$ 65.00	011-2890-A55
50.0	120.0	8.2	3.0	114.6	62.28	≤ 1	\$ 34.00	011-2990	\$ 65.00	011-2990-A55
50.0	150.0	7.1	3.0	145.3	77.85	≤ 1	\$ 31.50	011-3330	\$ 63.00	011-3330-A55
50.0	170.0	6.6	3.0	165.6	88.23	≤ 1	\$ 31.50	011-3335	\$ 63.00	011-3335-A55
50.0	200.0	6.1	3.0	196.0	103.80	≤ 1	\$ 29.50	011-3340	\$ 61.00	011-3340-A55
50.0	220.0	5.8	3.0	216.2	114.18	≤ 1	\$ 29.50	011-3345	\$ 61.00	011-3345-A55
50.0	250.0	5.4	3.0	246.4	129.75	≤ 1	\$ 29.50	011-3350	\$ 61.00	011-3350-A55
50.0	300.0	5.0	3.0	296.7	155.70	≤ 1	\$ 29.50	011-3352	\$ 61.00	011-3352-A55
50.0	350.0	4.7	3.0	346.9	181.65	≤ 1	\$ 29.50	011-3354	\$ 61.00	011-3354-A55
50.0	400.0	4.5	3.0	397.0	207.60	≤ 1	\$ 29.50	011-3356	\$ 61.00	011-3356-A55
50.0	450.0	4.3	3.0	447.1	233.55	≤ 1	\$ 29.50	011-3358	\$ 61.00	011-3358-A55
50.0	500.0	4.2	3.0	497.2	259.50	≤ 1	\$ 29.50	011-3360	\$ 61.00	011-3360-A55
50.0	600.0	4.0	3.0	597.4	311.40	≤ 3	\$ 29.50	011-3364	\$ 61.00	011-3364-A55
50.0	700.0	3.9	3.0	697.5	363.30	≤ 3	\$ 29.50	011-3366	\$ 61.00	011-3366-A55
50.0	800.0	3.8	3.0	797.4	415.20	≤ 3	\$ 29.50	011-3370	\$ 61.00	011-3370-A55
50.0	900.0	3.7	3.0	897.6	467.10	≤ 3	\$ 29.50	011-3374	\$ 61.00	011-3374-A55
50.0	1000.0	3.6	3.0	997.6	519.00	≤ 3	\$ 29.50	011-3380	\$ 61.00	011-3380-A55
50.0	1200.0	3.5	3.0	1197.7	622.80	≤ 3	\$ 29.50	011-3382	\$ 61.00	011-3382-A55
50.0	1500.0	3.4	3.0	1497.8	778.50	≤ 3	\$ 29.50	011-3384	\$ 61.00	011-3384-A55
50.0	2000.0	3.3	3.0	1997.8	1038.00	≤ 3	\$ 29.50	011-3386	\$ 61.00	011-3386-A55
50.0	2500.0	3.2	3.0	2497.9	1297.50	≤ 3	\$ 29.50	011-3388	\$ 61.00	011-3388-A55
50.0	3000.0	3.2	3.0	2997.9	1557.00	≤ 3	\$ 29.50	011-3390	\$ 61.00	011-3390-A55
50.0	4000.0	3.2	3.0	3997.9	2076.00	≤ 3	\$ 29.50	011-3392	\$ 61.00	011-3392-A55
50.0	5000.0	3.1	3.0	4997.9	2595.00	≤ 3	\$ 29.50	011-3394	\$ 61.00	011-3394-A55
50.8	70.0	13.4	3.0	61.2	36.33	≤ 1	\$ 34.00	011-3396	\$ 65.00	011-3396-A55
50.8	80.0	11.7	3.0	72.3	41.52	≤ 1	\$ 34.00	011-3450	\$ 65.00	011-3450-A55
50.8	90.0	10.3	3.0	83.2	46.71	≤ 1	\$ 34.00	011-3460	\$ 65.00	011-3460-A55
50.8	100.0	9.6	3.0	93.7	51.90	≤ 1	\$ 34.00	011-3470	\$ 65.00	011-3470-A55
50.8	120.0	8.2	2.8	114.6	62.28	≤ 1	\$ 31.50	011-3480	\$ 63.00	011-3480-A55
50.8	150.0	7.1	2.8	145.3	77.85	≤ 1	\$ 31.50	011-3490	\$ 63.00	011-3490-A55
50.8	170.0	6.6	3.0	165.7	88.23	≤ 1	\$ 31.50	011-3500	\$ 63.00	011-3500-A55
50.8	200.0	6.1	2.9	196.0	103.80	≤ 1	\$ 31.50	011-3520	\$ 63.00	011-3520-A55
50.8	250.0	5.4	2.9	246.4	129.75	≤ 1	\$ 31.50	011-3550	\$ 63.00	011-3550-A55
50.8	300.0	5.0	2.9	296.7	155.70	≤ 1	\$ 31.50	011-3552	\$ 63.00	011-3552-A55
50.8	400.0	4.5	3.0	397.0	207.60	≤ 1	\$ 31.50	011-3556	\$ 63.00	011-3556-A55
50.8	500.0	4.2	3.0	497.2	259.50	≤ 1	\$ 31.50	011-3560	\$ 63.00	011-3560-A55
50.8	700.0	3.9	3.0	697.4	363.30	≤ 3	\$ 31.50	011-3564	\$ 63.00	011-3564-A55
50.8	1000.0	3.6	3.0	997.6	519.00	≤ 3	\$ 31.50	011-3570	\$ 63.00	011-3570-A55
60.0	70.0	18.8	3.0	57.6	36.33	≤ 1	\$ 47.50	011-3660	\$ 95.00	011-3660-A55
60.0	80.0	15.8	3.0	69.6	41.52	≤ 1	\$ 47.50	011-3670	\$ 95.00	011-3670-A55
60.0	90.0	13.9	3.0	80.8	46.71	≤ 1	\$ 47.50	011-3675	\$ 95.00	011-3675-A55
60.0	100.0	12.5	3.0	91.7	51.90	≤ 1	\$ 47.50	011-3680	\$ 95.00	011-3680-A55
60.0	120.0	10.7	3.0	113.0	62.28	≤ 1	\$ 44.00	011-3690	\$ 91.00	011-3690-A55
60.0	150.0	9.0	3.0	144.1	77.85	≤ 1	\$ 44.00	011-3770	\$ 91.00	011-3770-A55
60.0	170.0	8.3	3.0	164.6	88.23	≤ 1	\$ 44.00	011-3775	\$ 91.00	011-3775-A55
60.0	200.0	7.4	3.0	195.1	103.80	≤ 1	\$ 44.00	011-3780	\$ 91.00	011-3780-A55

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**BK-7 Plano Convex Lenses  
(continued)**

**UNCOATED**

**AR COATED  
425-675nm**

D (mm)	f (mm)	tc (mm)	te (mm)	fb (mm)	r (mm)	Centration (arcmin)	Price	PART NUMBER	Price	PART NUMBER
60.0	220.0	7.0	3.0	215.4	114.18	≤ 1	\$ 44.00	<b>011-3785</b>	\$ 91.00	<b>011-3785-A55</b>
60.0	250.0	6.5	3.0	245.7	129.75	≤ 1	\$ 44.00	<b>011-3790</b>	\$ 91.00	<b>011-3790-A55</b>
60.0	300.0	5.9	3.0	296.1	155.70	≤ 1	\$ 44.00	<b>011-3880</b>	\$ 91.00	<b>011-3880-A55</b>
60.0	350.0	5.5	3.0	346.4	181.65	≤ 1	\$ 44.00	<b>011-3885</b>	\$ 91.00	<b>011-3885-A55</b>
60.0	400.0	5.2	3.0	396.6	207.60	≤ 1	\$ 44.00	<b>011-3887</b>	\$ 91.00	<b>011-3887-A55</b>
60.0	450.0	4.9	3.0	446.8	233.55	≤ 1	\$ 44.00	<b>011-3888</b>	\$ 91.00	<b>011-3888-A55</b>
60.0	500.0	4.7	3.0	496.9	259.50	≤ 1	\$ 44.00	<b>011-3890</b>	\$ 91.00	<b>011-3890-A55</b>
60.0	600.0	4.4	3.0	597.1	311.40	≤ 1	\$ 44.00	<b>011-3910</b>	\$ 91.00	<b>011-3910-A55</b>
60.0	700.0	4.2	3.0	697.2	363.30	≤ 3	\$ 44.00	<b>011-3930</b>	\$ 91.00	<b>011-3930-A55</b>
60.0	800.0	4.1	3.0	797.3	415.20	≤ 3	\$ 44.00	<b>011-3990</b>	\$ 91.00	<b>011-3990-A55</b>
60.0	900.0	4.0	3.0	897.4	467.10	≤ 3	\$ 44.00	<b>011-3995</b>	\$ 91.00	<b>011-3995-A55</b>
60.0	1000.0	3.9	3.0	997.5	519.00	≤ 3	\$ 44.00	<b>011-4440</b>	\$ 91.00	<b>011-4440-A55</b>
80.0	100.0	21.8	3.0	85.6	51.90	≤ 1	\$ 72.50	<b>011-4490</b>	\$ 141.00	<b>011-4490-A55</b>
80.0	150.0	14.1	3.0	140.8	77.85	≤ 1	\$ 72.50	<b>011-4550</b>	\$ 141.00	<b>011-4550-A55</b>
80.0	200.0	11.0	3.0	192.7	103.80	≤ 1	\$ 68.50	<b>011-4560</b>	\$ 137.00	<b>011-4560-A55</b>
80.0	250.0	9.3	3.0	243.9	129.75	≤ 1	\$ 68.50	<b>011-4565</b>	\$ 137.00	<b>011-4565-A55</b>
80.0	300.0	8.2	3.0	294.6	155.70	≤ 1	\$ 68.50	<b>011-4570</b>	\$ 137.00	<b>011-4570-A55</b>
80.0	350.0	7.5	3.0	345.1	181.65	≤ 1	\$ 68.50	<b>011-4572</b>	\$ 137.00	<b>011-4572-A55</b>
80.0	400.0	6.9	3.0	395.5	207.60	≤ 1	\$ 68.50	<b>011-4575</b>	\$ 137.00	<b>011-4575-A55</b>
80.0	500.0	6.1	3.0	496.0	259.50	≤ 1	\$ 68.50	<b>011-4580</b>	\$ 137.00	<b>011-4580-A55</b>
80.0	600.0	5.6	3.0	596.3	311.40	≤ 1	\$ 68.50	<b>011-4584</b>	\$ 137.00	<b>011-4584-A55</b>
80.0	700.0	5.2	3.0	696.6	363.30	≤ 1	\$ 68.50	<b>011-4588</b>	\$ 137.00	<b>011-4588-A55</b>
80.0	800.0	4.9	3.0	796.8	415.20	≤ 1	\$ 68.50	<b>011-4590</b>	\$ 137.00	<b>011-4590-A55</b>
80.0	1000.0	4.5	3.0	997.0	519.00	≤ 3	\$ 68.50	<b>011-4660</b>	\$ 137.00	<b>011-4660-A55</b>
100.0	150.0	21.2	3.0	136.1	77.85	≤ 1	\$ 93.50	<b>011-4670</b>	\$ 193.00	<b>011-4670-A55</b>
100.0	200.0	15.8	3.0	189.6	103.80	≤ 1	\$ 93.50	<b>011-4680</b>	\$ 193.00	<b>011-4680-A55</b>
100.0	250.0	13.0	3.0	241.4	129.75	≤ 1	\$ 93.50	<b>011-4690</b>	\$ 193.00	<b>011-4690-A55</b>
100.0	300.0	11.2	3.0	292.6	155.70	≤ 1	\$ 93.50	<b>011-4770</b>	\$ 193.00	<b>011-4770-A55</b>
100.0	350.0	10.0	3.0	343.4	181.65	≤ 1	\$ 89.50	<b>011-4772</b>	\$ 189.00	<b>011-4772-A55</b>
100.0	400.0	9.1	3.0	394.4	207.60	≤ 1	\$ 89.50	<b>011-4775</b>	\$ 189.00	<b>011-4775-A55</b>
100.0	500.0	7.9	3.0	494.8	259.50	≤ 1	\$ 89.50	<b>011-4780</b>	\$ 189.00	<b>011-4780-A55</b>
100.0	600.0	7.0	3.0	595.4	311.40	≤ 1	\$ 89.50	<b>011-4782</b>	\$ 189.00	<b>011-4782-A55</b>
100.0	700.0	6.5	3.0	695.7	363.30	≤ 1	\$ 89.50	<b>011-4785</b>	\$ 189.00	<b>011-4785-A55</b>
100.0	800.0	6.0	3.0	796.0	415.20	≤ 1	\$ 89.50	<b>011-4790</b>	\$ 189.00	<b>011-4790-A55</b>
100.0	1000.0	5.4	3.0	996.4	519.00	≤ 1	\$ 89.50	<b>011-4880</b>	\$ 189.00	<b>011-4880-A55</b>



*OptoSigma coatings are manufactured using Ion Assisted Deposition (IAD) technology yielding highly densified coatings with extremely low losses and high laser damage thresholds.*

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For other Anti-Reflection coatings append appropriate suffix (see pages 18 and 19). For smaller diameter lenses see the Microlenses section. For designs not found in our catalog, please call.



## BK-7 Biconvex Lenses

- Symmetrically convex positive lenses
- Focal lengths from 6.4 to 300mm
- Diameters from 5 to 100mm
- Anti-Reflection coatings available
- For additional sizes see Micro Optics

Symmetrical biconvex lenses are most useful when dealing with finite conjugate points. This makes them ideal for 1:1 imaging applications or for use in multi-element systems.



### Specifications & Tolerances

Focal length:  $\pm 1\%$  (Diameter  $\geq 10\text{mm}$ )  
 $\pm 2\%$  (Diameter  $< 10\text{mm}$ )

Thickness:  $\pm 0.15\text{mm}$

Surface Quality: 20-10 (Diameter  $\geq 10\text{mm}$ )  
 40-20 (Diameter  $< 10\text{mm}$ )

Material: BK7 grade A

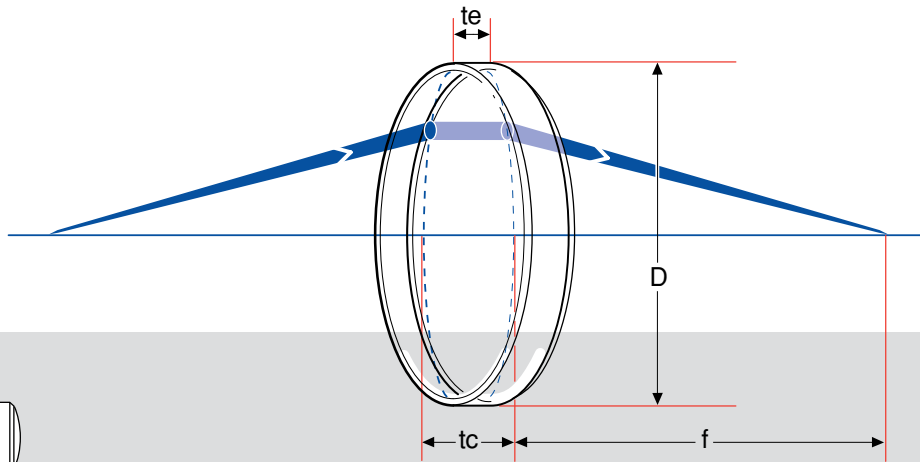
Design Wavelength: 546.1nm

Diameter:  $\leq 60\text{mm} +0, -0.10\text{mm}$   
 $= 80\text{mm} +0, -0.15\text{mm}$   
 $= 100\text{mm} +0, -0.20\text{mm}$

Centration: 3arcmin (Diameter  $< 10\text{mm}$ )  
 1arcmin (Diameter  $\geq 10\text{mm}$ )

Clear Aperture:  $> 90\%$

Coating: Optional broadband Anti-Reflection 425-675nm (for other wavelengths see pages 18-19)



BICONVEX LENS

For  
 fused silica  
 biconvex lenses see  
 pages  
 79-81.

## BK-7 Biconvex Lenses

UNCOATED

AR COATED  
 425-675nm

D (mm)	f (mm)	te (mm)	tc (mm)	fb (mm)	r (mm)	Centration (arcmin)	Price	PART NUMBER	Price	PART NUMBER
5.0	6.4	2.5	1.5	5.6	6.23	$\leq 3$	\$17.00	013-0120	\$36.00	013-0120-A55
5.0	8.4	2.1	1.4	7.6	8.30	$\leq 3$	\$17.00	013-0130	\$36.00	013-0130-A55
5.0	10.3	1.9	1.3	9.7	10.38	$\leq 3$	\$15.00	013-0140	\$34.00	013-0140-A55
5.0	12.3	1.7	1.2	11.7	12.46	$\leq 3$	\$15.00	013-0160	\$34.00	013-0160-A55
5.0	15.3	1.6	1.2	14.7	15.57	$\leq 3$	\$15.00	013-0170	\$34.00	013-0170-A55
5.0	20.2	1.4	1.1	19.8	20.76	$\leq 3$	\$15.00	013-0180	\$34.00	013-0180-A55
5.0	25.2	1.3	1.1	24.8	25.95	$\leq 3$	\$15.00	013-0190	\$34.00	013-0190-A55
5.0	30.2	1.3	1.1	29.8	31.14	$\leq 3$	\$15.00	013-0220	\$34.00	013-0220-A55
6.0	6.4	2.5	1.0	5.6	6.23	$\leq 3$	\$17.00	013-0230	\$36.00	013-0230-A55
6.0	8.4	2.1	1.0	7.6	8.30	$\leq 3$	\$17.00	013-0240	\$36.00	013-0240-A55
6.0	10.3	1.9	1.0	9.7	10.38	$\leq 3$	\$15.00	013-0260	\$34.00	013-0260-A55
6.0	12.3	1.7	1.0	11.7	12.46	$\leq 3$	\$15.00	013-0270	\$34.00	013-0270-A55
6.0	15.3	1.6	1.0	14.7	15.57	$\leq 3$	\$15.00	013-0280	\$34.00	013-0280-A55
6.0	20.2	1.4	1.0	19.8	20.76	$\leq 3$	\$15.00	013-0290	\$34.00	013-0290-A55

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## BK-7 Biconvex Lenses (continued)

UNCOATED

AR COATED  
425-675 nm

## Spherical Lenses

## Cylindrical Lenses

## Lens Kits

## Achromatic Doublets

## Multi-Element

## Micro Optics

## Mirrors

## Prisms

## Substrates &amp; Windows

## Beamsplitters

## Polarizers

## Filter &amp; Apertures

	D (mm)	f (mm)	te (mm)	tc (mm)	fb (mm)	r (mm)	Centration (arcmin)	Price	PART NUMBER	Price	PART NUMBER
	6.0	25.2	1.3	1.0	24.8	25.95	≤ 3	\$15.00	<b>013-0330</b>	\$ 34.00	<b>013-0330-A55</b>
	6.0	30.2	1.3	1.0	29.8	31.14	≤ 3	\$15.00	<b>013-0340</b>	\$ 34.00	<b>013-0340-A55</b>
	7.0	8.6	3.6	2.0	7.4	8.30	≤ 3	\$17.00	<b>013-0410</b>	\$ 36.00	<b>013-0410-A55</b>
	7.0	10.5	3.1	1.9	9.5	10.38	≤ 3	\$17.00	<b>013-0420</b>	\$ 36.00	<b>013-0420-A55</b>
	7.0	12.5	2.8	1.8	11.5	12.46	≤ 3	\$17.00	<b>013-0430</b>	\$ 36.00	<b>013-0430-A55</b>
	7.0	15.4	2.5	1.7	14.6	15.57	≤ 3	\$17.00	<b>013-0440</b>	\$ 36.00	<b>013-0440-A55</b>
	7.0	20.4	2.3	1.7	19.6	20.76	≤ 3	\$17.00	<b>013-0450</b>	\$ 36.00	<b>013-0450-A55</b>
	7.0	25.4	2.1	1.6	24.6	25.95	≤ 3	\$17.00	<b>013-0457</b>	\$ 36.00	<b>013-0457-A55</b>
	7.0	30.3	2.0	1.6	29.7	31.14	≤ 3	\$17.00	<b>013-0459</b>	\$ 36.00	<b>013-0459-A55</b>
	7.0	40.3	1.9	1.6	39.7	41.52	≤ 3	\$17.00	<b>013-0461</b>	\$ 36.00	<b>013-0461-A55</b>
	7.0	50.3	1.8	1.6	49.7	51.90	≤ 3	\$17.00	<b>013-0463</b>	\$ 36.00	<b>013-0463-A55</b>
	8.0	8.6	3.6	1.5	7.4	8.30	≤ 3	\$17.00	<b>013-0550</b>	\$ 36.00	<b>013-0550-A55</b>
	8.0	10.5	3.1	1.5	9.5	10.38	≤ 3	\$17.00	<b>013-0560</b>	\$ 36.00	<b>013-0560-A55</b>
	8.0	12.5	2.8	1.5	11.5	12.46	≤ 3	\$16.00	<b>013-0570</b>	\$ 35.00	<b>013-0570-A55</b>
	8.0	15.4	2.5	1.5	14.6	15.57	≤ 3	\$16.00	<b>013-0580</b>	\$ 35.00	<b>013-0580-A55</b>
	8.0	20.4	2.3	1.5	19.6	20.76	≤ 3	\$16.00	<b>013-0590</b>	\$ 35.00	<b>013-0590-A55</b>
	8.0	25.4	2.1	1.5	24.6	25.95	≤ 3	\$16.00	<b>013-0660</b>	\$ 35.00	<b>013-0660-A55</b>
	8.0	30.3	2.0	1.5	29.7	31.14	≤ 3	\$16.00	<b>013-0670</b>	\$ 35.00	<b>013-0670-A55</b>
	8.0	40.3	1.9	1.5	39.7	41.52	≤ 3	\$16.00	<b>013-0680</b>	\$ 35.00	<b>013-0680-A55</b>
	8.0	50.3	1.8	1.5	49.7	51.90	≤ 3	\$16.00	<b>013-0690</b>	\$ 35.00	<b>013-0690-A55</b>
	10.0	10.8	4.6	2.0	9.2	10.38	≤ 1	\$17.00	<b>013-0770</b>	\$ 36.00	<b>013-0770-A55</b>
	10.0	15.6	3.6	2.0	14.4	15.57	≤ 1	\$17.00	<b>013-0780</b>	\$ 36.00	<b>013-0780-A55</b>
	10.0	20.5	3.2	2.0	19.5	20.76	≤ 1	\$16.00	<b>013-0790</b>	\$ 36.00	<b>013-0790-A55</b>
	10.0	25.5	3.0	2.0	24.5	25.95	≤ 1	\$16.00	<b>013-0880</b>	\$ 36.00	<b>013-0880-A55</b>
	10.0	30.5	2.8	2.0	29.5	31.14	≤ 1	\$16.00	<b>013-0890</b>	\$ 36.00	<b>013-0890-A55</b>
	10.0	40.4	2.6	2.0	39.6	41.52	≤ 1	\$16.00	<b>013-0990</b>	\$ 36.00	<b>013-0990-A55</b>
	10.0	50.4	2.5	2.0	49.6	51.90	≤ 1	\$16.00	<b>013-1110</b>	\$ 36.00	<b>013-1110-A55</b>
	10.0	60.4	2.4	2.0	59.6	62.28	≤ 1	\$16.00	<b>013-1120</b>	\$ 36.00	<b>013-1120-A55</b>
	10.0	70.4	2.3	2.0	69.6	72.66	≤ 1	\$16.00	<b>013-1130</b>	\$ 36.00	<b>013-1130-A55</b>
	10.0	80.4	2.3	2.0	79.6	83.04	≤ 1	\$16.00	<b>013-1140</b>	\$ 36.00	<b>013-1140-A55</b>
	10.0	90.4	2.3	2.0	89.6	93.42	≤ 1	\$16.00	<b>013-1145</b>	\$ 36.00	<b>013-1145-A55</b>
	10.0	100.4	2.2	2.0	99.6	103.80	≤ 1	\$16.00	<b>013-1150</b>	\$ 36.00	<b>013-1150-A55</b>
	12.7	13.0	5.5	2.0	11.0	12.46	≤ 1	\$18.00	<b>013-1160</b>	\$ 38.00	<b>013-1160-A55</b>
	12.7	20.7	4.0	2.0	19.3	20.76	≤ 1	\$18.00	<b>013-1170</b>	\$ 38.00	<b>013-1170-A55</b>
	12.7	25.6	3.6	2.0	24.4	25.95	≤ 1	\$18.00	<b>013-1180</b>	\$ 38.00	<b>013-1180-A55</b>
	12.7	30.6	3.3	2.0	29.5	31.14	≤ 1	\$18.00	<b>013-1185</b>	\$ 38.00	<b>013-1185-A55</b>
	12.7	40.5	3.0	2.0	39.5	41.52	≤ 1	\$18.00	<b>013-1190</b>	\$ 38.00	<b>013-1190-A55</b>
	12.7	50.5	2.8	2.0	49.6	51.90	≤ 1	\$18.00	<b>013-1220</b>	\$ 38.00	<b>013-1220-A55</b>
	12.7	60.4	2.6	2.0	59.5	62.28	≤ 1	\$18.00	<b>013-1230</b>	\$ 38.00	<b>013-1230-A55</b>
	12.7	70.4	2.6	2.0	69.5	72.66	≤ 1	\$18.00	<b>013-1240</b>	\$ 38.00	<b>013-1240-A55</b>
	15.0	16.0	5.9	2.0	14.0	15.57	≤ 1	\$20.00	<b>013-1250</b>	\$ 42.00	<b>013-1250-A55</b>
	15.0	20.8	4.8	2.0	19.2	20.76	≤ 1	\$20.00	<b>013-1260</b>	\$ 42.00	<b>013-1260-A55</b>
	15.0	25.7	4.2	2.0	24.3	25.95	≤ 1	\$20.00	<b>013-1270</b>	\$ 42.00	<b>013-1270-A55</b>
	15.0	30.6	3.8	2.0	29.4	31.14	≤ 1	\$20.00	<b>013-1280</b>	\$ 42.00	<b>013-1280-A55</b>
	15.0	40.6	3.4	2.0	39.4	41.52	≤ 1	\$20.00	<b>013-1290</b>	\$ 42.00	<b>013-1290-A55</b>
	15.0	50.5	3.1	2.0	49.5	51.90	≤ 1	\$19.00	<b>013-1330</b>	\$ 41.00	<b>013-1330-A55</b>
	15.0	60.5	2.9	2.0	59.5	62.28	≤ 1	\$19.00	<b>013-1340</b>	\$ 41.00	<b>013-1340-A55</b>
	15.0	70.5	2.8	2.0	69.5	72.66	≤ 1	\$19.00	<b>013-1345</b>	\$ 41.00	<b>013-1345-A55</b>
	15.0	80.4	2.7	2.0	79.6	83.04	≤ 1	\$19.00	<b>013-1350</b>	\$ 41.00	<b>013-1350-A55</b>
	15.0	90.4	2.6	2.0	89.6	93.42	≤ 1	\$19.00	<b>013-1355</b>	\$ 41.00	<b>013-1355-A55</b>
	15.0	100.4	2.5	2.0	99.6	103.80	≤ 1	\$19.00	<b>013-1360</b>	\$ 41.00	<b>013-1360-A55</b>
	20.0	21.2	7.1	2.0	18.8	20.76	≤ 1	\$21.00	<b>013-1370</b>	\$ 45.00	<b>013-1370-A55</b>

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## BK-7 Biconvex Lenses (continued)

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425-675nm

D (mm)	f (mm)	te (mm)	tc (mm)	fb (mm)	r (mm)	Centration (arcmin)	Price	PART NUMBER	Price	PART NUMBER
20.0	26.0	6.0	2.0	24.0	25.95	≤ 1	\$21.00	013-1380	\$ 45.00	013-1380-A55
20.0	31.0	5.3	2.0	29.1	31.14	≤ 1	\$21.00	013-1390	\$ 45.00	013-1390-A55
20.0	40.7	4.4	2.0	39.3	41.52	≤ 1	\$20.00	013-1440	\$ 44.00	013-1440-A55
20.0	50.7	3.9	2.0	49.3	51.90	≤ 1	\$20.00	013-1450	\$ 44.00	013-1450-A55
20.0	60.6	3.6	2.0	59.4	62.28	≤ 1	\$20.00	013-1460	\$ 44.00	013-1460-A55
20.0	70.6	3.4	2.0	69.4	72.66	≤ 1	\$20.00	013-1465	\$ 44.00	013-1465-A55
20.0	80.5	3.2	2.0	79.5	83.04	≤ 1	\$20.00	013-1470	\$ 44.00	013-1470-A55
20.0	90.5	3.1	2.0	89.5	93.42	≤ 1	\$20.00	013-1475	\$ 44.00	013-1475-A55
20.0	100.5	3.0	2.0	99.5	103.80	≤ 1	\$20.00	013-1480	\$ 44.00	013-1480-A55
20.0	120.5	2.8	2.0	119.5	124.56	≤ 1	\$20.00	013-1490	\$ 44.00	013-1490-A55
20.0	150.4	2.6	2.0	149.6	155.70	≤ 1	\$20.00	013-1550	\$ 44.00	013-1550-A55
25.0	26.5	8.4	2.0	23.5	25.95	≤ 1	\$24.50	013-1660	\$ 48.50	013-1660-A55
25.0	31.2	7.2	2.0	28.8	31.14	≤ 1	\$24.50	013-1670	\$ 48.50	013-1670-A55
25.0	36.1	6.4	2.0	33.9	36.33	≤ 1	\$23.00	013-1680	\$ 47.00	013-1680-A55
25.0	41.0	5.9	2.0	39.0	41.52	≤ 1	\$23.00	013-1690	\$ 47.00	013-1690-A55
25.0	50.8	5.1	2.0	49.2	51.90	≤ 1	\$23.00	013-1770	\$ 47.00	013-1770-A55
25.0	60.8	4.5	2.0	59.2	62.28	≤ 1	\$23.00	013-1780	\$ 47.00	013-1780-A55
25.0	70.7	4.2	2.0	69.3	72.66	≤ 1	\$23.00	013-1785	\$ 47.00	013-1785-A55
25.0	80.6	3.9	2.0	79.4	83.04	≤ 1	\$23.00	013-1790	\$ 47.00	013-1790-A55
25.0	90.6	3.7	2.0	89.4	93.42	≤ 1	\$23.00	013-1810	\$ 47.00	013-1810-A55
25.0	100.6	3.5	2.0	99.4	103.80	≤ 1	\$23.00	013-1880	\$ 47.00	013-1880-A55
25.0	120.5	3.3	2.0	119.5	124.56	≤ 1	\$23.00	013-1890	\$ 47.00	013-1890-A55
25.0	150.5	3.0	2.0	149.5	155.70	≤ 1	\$23.00	013-1990	\$ 47.00	013-1990-A55
25.0	170.5	2.9	2.0	169.5	176.46	≤ 1	\$23.00	013-1850	\$ 47.00	013-1850-A55
25.0	200.5	2.8	2.0	199.5	207.60	≤ 1	\$23.00	013-2220	\$ 47.00	013-2220-A55
25.4	26.5	8.4	1.8	23.6	25.95	≤ 1	\$24.50	013-2240	\$ 50.50	013-2240-A55
25.4	31.2	7.2	1.8	28.7	31.14	≤ 1	\$24.50	013-2243	\$ 50.50	013-2243-A55
25.4	36.1	6.4	1.8	33.9	36.33	≤ 1	\$24.50	013-2245	\$ 50.50	013-2245-A55
25.4	41.0	5.9	1.9	39.0	41.52	≤ 1	\$24.50	013-2250	\$ 50.50	013-2250-A55
25.4	50.8	5.1	1.9	49.2	51.90	≤ 1	\$23.00	013-2260	\$ 49.50	013-2260-A55
25.4	60.8	4.5	1.9	59.2	62.28	≤ 1	\$23.00	013-2270	\$ 49.50	013-2270-A55
25.4	70.7	4.1	1.9	69.3	72.66	≤ 1	\$23.00	013-2275	\$ 49.50	013-2275-A55
25.4	80.6	3.9	1.9	79.3	83.04	≤ 1	\$23.00	013-2280	\$ 49.50	013-2280-A55
25.4	90.6	3.7	1.9	89.4	93.42	≤ 1	\$23.00	013-2285	\$ 49.50	013-2285-A55
25.4	100.6	3.5	1.9	99.4	103.80	≤ 1	\$23.00	013-2290	\$ 49.50	013-2290-A55
25.4	120.5	3.3	2.0	119.4	124.56	≤ 1	\$23.00	013-2295	\$ 49.50	013-2295-A55
25.4	150.5	3.0	2.0	149.5	155.70	≤ 1	\$23.00	013-2300	\$ 49.50	013-2300-A55
25.4	200.5	2.8	2.0	199.6	207.60	≤ 1	\$23.00	013-2310	\$ 49.50	013-2310-A55
30.0	31.7	9.7	2.0	28.3	31.14	≤ 1	\$25.00	013-2330	\$ 51.50	013-2330-A55
30.0	36.5	8.5	2.0	33.5	36.33	≤ 1	\$25.00	013-2340	\$ 51.50	013-2340-A55
30.0	41.3	7.6	2.0	38.7	41.52	≤ 1	\$25.00	013-2350	\$ 51.50	013-2350-A55
30.0	51.1	6.4	2.0	48.9	51.90	≤ 1	\$25.00	013-2360	\$ 51.50	013-2360-A55
30.0	60.9	5.7	2.0	59.1	62.28	≤ 1	\$25.00	013-2370	\$ 51.50	013-2370-A55
30.0	70.9	5.1	2.0	69.1	72.66	≤ 1	\$25.00	013-2380	\$ 51.50	013-2380-A55
30.0	80.8	4.7	2.0	79.2	83.04	≤ 1	\$25.00	013-2390	\$ 51.50	013-2390-A55
30.0	90.7	4.4	2.0	89.3	93.42	≤ 1	\$25.00	013-2410	\$ 51.50	013-2410-A55
30.0	100.7	4.2	2.0	99.3	103.80	≤ 1	\$25.00	013-2440	\$ 51.50	013-2440-A55
30.0	120.6	3.8	2.0	119.4	124.56	≤ 1	\$25.00	013-2450	\$ 51.50	013-2450-A55
30.0	150.6	3.4	2.0	149.4	155.70	≤ 1	\$25.00	013-2460	\$ 51.50	013-2460-A55
30.0	170.5	3.3	2.0	169.5	176.46	≤ 1	\$25.00	013-2465	\$ 51.50	013-2465-A55
30.0	200.5	3.1	2.0	199.5	207.60	≤ 1	\$25.00	013-2470	\$ 51.50	013-2470-A55
30.0	220.5	3.0	2.0	219.5	228.36	≤ 1	\$25.00	013-2475	\$ 51.50	013-2475-A55
30.0	250.5	2.9	2.0	249.5	259.50	≤ 1	\$25.00	013-2480	\$ 51.50	013-2480-A55
38.1	42.0	11.3	2.0	38.1	41.52	≤ 1	\$31.50	013-2780	\$ 60.00	013-2780-A55

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## BK-7 Biconvex Lenses (continued)

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425-675 nm

## Spherical Lenses

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## Lens Kits

## Achromatic Doublets

## Multi-Element

## Micro Optics

## Mirrors

## Prisms

## Substrates &amp; Windows

## Beamsplitters

## Polarizers

## Filter &amp; Apertures

	D (mm)	f (mm)	te (mm)	tc (mm)	fb (mm)	r (mm)	Centration (arcmin)	Price	PART NUMBER	Price	PART NUMBER
	38.1	51.6	9.2	2.0	48.5	51.90	≤ 1	\$31.50	013-2790	\$ 60.00	013-2790-A55
	38.1	61.3	8.0	2.0	58.6	62.28	≤ 1	\$29.50	013-2880	\$ 58.00	013-2880-A55
	38.1	81.1	6.4	2.0	79.0	83.04	≤ 1	\$29.50	013-2890	\$ 58.00	013-2890-A55
	40.0	42.1	12.3	2.0	37.9	41.52	≤ 1	\$36.00	013-3350	\$ 64.00	013-3350-A55
	40.0	51.7	10.0	2.0	48.3	51.90	≤ 1	\$34.00	013-3360	\$ 62.00	013-3360-A55
	40.0	61.4	8.6	2.0	58.6	62.28	≤ 1	\$28.50	013-3370	\$ 57.00	013-3370-A55
	40.0	71.3	7.6	2.0	68.7	72.66	≤ 1	\$28.50	013-3380	\$ 57.00	013-3380-A55
	40.0	81.2	6.9	2.0	78.8	83.04	≤ 1	\$28.50	013-3390	\$ 57.00	013-3390-A55
	40.0	91.1	6.3	2.0	88.9	93.42	≤ 1	\$28.50	013-3410	\$ 57.00	013-3410-A55
	40.0	101.0	5.9	2.0	99.0	103.80	≤ 1	\$28.50	013-3440	\$ 57.00	013-3440-A55
	40.0	120.9	5.2	2.0	119.1	124.56	≤ 1	\$28.50	013-3450	\$ 57.00	013-3450-A55
	40.0	150.8	4.6	2.0	149.2	155.70	≤ 1	\$28.50	013-3460	\$ 57.00	013-3460-A55
	40.0	170.7	4.3	2.0	169.3	176.46	≤ 1	\$28.50	013-3465	\$ 57.00	013-3465-A55
	40.0	200.6	3.9	2.0	199.4	207.60	≤ 1	\$28.50	013-3470	\$ 57.00	013-3470-A55
	40.0	220.6	3.8	2.0	219.4	228.36	≤ 1	\$28.50	013-3475	\$ 57.00	013-3475-A55
	40.0	250.6	3.5	2.0	249.4	259.50	≤ 1	\$28.50	013-3480	\$ 57.00	013-3480-A55
	50.0	52.7	15.8	3.0	47.3	51.90	≤ 1	\$35.00	013-3570	\$ 66.00	013-3570-A55
	50.0	62.3	13.5	3.0	57.7	62.28	≤ 1	\$35.00	013-3580	\$ 66.00	013-3580-A55
	50.0	72.0	11.9	3.0	68.0	72.66	≤ 1	\$34.00	013-3590	\$ 65.00	013-3590-A55
	50.0	81.8	10.7	3.0	78.2	83.04	≤ 1	\$34.00	013-3660	\$ 65.00	013-3660-A55
	50.0	91.6	9.8	3.0	88.4	93.42	≤ 1	\$34.00	013-3665	\$ 65.00	013-3665-A55
	50.0	101.5	9.1	3.0	98.5	103.80	≤ 1	\$32.50	013-3670	\$ 64.00	013-3670-A55
	50.0	121.3	8.0	3.0	118.7	124.56	≤ 1	\$32.50	013-3680	\$ 64.00	013-3680-A55
	50.0	151.2	7.0	3.0	148.8	155.70	≤ 1	\$32.50	013-3690	\$ 64.00	013-3690-A55
	50.0	171.1	6.6	3.0	168.9	176.46	≤ 1	\$32.50	013-3710	\$ 64.00	013-3710-A55
	50.0	201.0	6.0	3.0	199.0	207.60	≤ 1	\$32.50	013-3770	\$ 64.00	013-3770-A55
	50.0	220.9	5.7	3.0	219.1	228.36	≤ 1	\$32.50	013-3775	\$ 64.00	013-3775-A55
	50.0	251.0	5.4	3.0	249.1	259.50	≤ 1	\$32.50	013-3780	\$ 64.00	013-3780-A55
	50.0	300.8	5.0	3.0	299.2	311.40	≤ 1	\$31.50	013-3790	\$ 63.00	013-3790-A55
	50.8	52.7	16.3	3.0	47.1	51.90	≤ 1	\$35.00	013-4550	\$ 66.00	013-4550-A55
	50.8	62.3	13.8	3.0	57.7	62.28	≤ 1	\$35.00	013-4555	\$ 66.00	013-4555-A55
	50.8	72.0	12.2	3.0	68.0	72.66	≤ 1	\$35.00	013-4560	\$ 66.00	013-4560-A55
	50.8	81.8	11.0	3.0	78.2	83.04	≤ 1	\$35.00	013-4570	\$ 66.00	013-4570-A55
	50.8	91.6	9.8	2.8	88.3	93.42	≤ 1	\$35.00	013-4580	\$ 66.00	013-4580-A55
	50.8	101.5	9.3	3.0	98.5	103.80	≤ 1	\$35.00	013-4590	\$ 66.00	013-4590-A55
	50.8	121.3	8.0	2.8	118.6	124.56	≤ 1	\$31.50	013-4595	\$ 63.00	013-4595-A55
	50.8	151.2	7.0	2.8	148.9	155.70	≤ 1	\$31.50	013-4610	\$ 63.00	013-4610-A55
	50.8	171.1	6.1	2.9	169.0	176.46	≤ 1	\$31.50	013-4615	\$ 63.00	013-4615-A55
	50.8	201.0	6.0	2.9	199.0	207.60	≤ 1	\$31.50	013-4620	\$ 63.00	013-4620-A55
	50.8	251.0	5.4	2.9	249.1	259.50	≤ 1	\$31.50	013-4630	\$ 63.00	013-4630-A55
	50.8	300.8	5.0	2.9	299.1	311.40	≤ 1	\$31.50	013-4640	\$ 63.00	013-4640-A55
	60.0	63.2	18.4	3.0	56.8	62.28	≤ 1	\$51.50	013-4690	\$ 99.00	013-4690-A55
	60.0	72.7	16.0	3.0	67.3	72.66	≤ 1	\$51.50	013-4710	\$ 99.00	013-4710-A55
	60.0	82.4	14.2	3.0	77.6	83.04	≤ 1	\$51.50	013-4770	\$ 99.00	013-4770-A55
	60.0	92.2	13.0	3.0	87.8	93.42	≤ 1	\$51.50	013-4775	\$ 99.00	013-4775-A55
	60.0	102.0	11.9	3.0	98.0	103.80	≤ 1	\$51.50	013-4780	\$ 99.00	013-4780-A55
	60.0	121.7	10.3	3.0	118.3	124.56	≤ 1	\$51.50	013-4790	\$ 99.00	013-4790-A55
	60.0	151.5	8.8	3.0	148.5	155.70	≤ 1	\$48.50	013-4880	\$ 95.00	013-4880-A55
	60.0	171.4	8.1	3.0	168.7	176.46	≤ 1	\$48.50	013-4885	\$ 95.00	013-4885-A55
	60.0	201.2	7.4	3.0	198.8	207.60	≤ 1	\$48.50	013-4890	\$ 95.00	013-4890-A55
	60.0	221.2	7.0	3.0	218.8	228.36	≤ 1	\$48.50	013-4895	\$ 95.00	013-4895-A55
	60.0	251.1	6.5	3.0	248.9	259.50	≤ 1	\$48.50	013-4990	\$ 95.00	013-4990-A55
	60.0	301.0	5.9	3.0	299.0	311.40	≤ 1	\$48.50	013-5550	\$ 95.00	013-5550-A55

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## BK-7 Biconvex Lenses (continued)

UNCOATED

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425-675nm

D (mm)	f (mm)	te (mm)	tc (mm)	fb (mm)	r (mm)	Centration (arcmin)	Price	PART NUMBER	Price	PART NUMBER
80.0	103.2	19.0	3.0	96.8	103.80	≤ 1	\$72.50	<b>013-5770</b>	\$ 141.00	<b>013-5770-A55</b>
80.0	152.2	13.5	3.0	147.8	155.70	≤ 1	\$72.50	<b>013-5780</b>	\$ 141.00	<b>013-5780-A55</b>
80.0	201.8	10.8	3.0	198.2	207.60	≤ 1	\$72.50	<b>013-5790</b>	\$ 141.00	<b>013-5790-A55</b>
80.0	251.5	9.2	3.0	248.5	259.50	≤ 1	\$72.50	<b>013-5810</b>	\$ 141.00	<b>013-5810-A55</b>
80.0	301.3	8.2	3.0	298.7	311.40	≤ 1	\$72.50	<b>013-5880</b>	\$ 141.00	<b>013-5880-A55</b>
80.0	401.1	6.9	3.0	398.9	415.20	≤ 1	\$72.50	<b>013-5885</b>	\$ 141.00	<b>013-5885-A55</b>
80.0	501.0	6.1	3.0	499.0	519.00	≤ 1	\$72.50	<b>013-5890</b>	\$ 141.00	<b>013-5890-A55</b>
80.0	700.9	5.2	3.0	699.1	726.60	≤ 1	\$72.50	<b>013-5895</b>	\$ 141.00	<b>013-5895-A55</b>
80.0	1000.7	4.5	3.0	999.3	1038.00	≤ 1	\$72.50	<b>013-6660</b>	\$ 141.00	<b>013-6660-A55</b>
100.0	153.3	19.5	3.0	146.7	155.70	≤ 1	\$110.00	<b>013-6670</b>	\$ 210.00	<b>013-6670-A55</b>
100.0	202.5	15.2	3.0	197.5	207.60	≤ 1	\$110.00	<b>013-6680</b>	\$ 210.00	<b>013-6680-A55</b>
100.0	252.1	12.7	3.0	247.9	259.50	≤ 1	\$110.00	<b>013-6690</b>	\$ 210.00	<b>013-6690-A55</b>
100.0	301.8	11.1	3.0	298.2	311.40	≤ 1	\$110.00	<b>013-6770</b>	\$ 210.00	<b>013-6770-A55</b>
100.0	401.5	9.0	3.0	398.5	415.20	≤ 1	\$110.00	<b>013-6775</b>	\$ 210.00	<b>013-6775-A55</b>
100.0	501.3	7.8	3.0	498.7	519.00	≤ 1	\$110.00	<b>013-6780</b>	\$ 210.00	<b>013-6780-A55</b>
100.0	701.1	6.4	3.0	698.9	726.60	≤ 1	\$110.00	<b>013-6785</b>	\$ 210.00	<b>013-6785-A55</b>
100.0	1001.0	5.4	3.0	999.1	1038.00	≤ 1	\$110.00	<b>013-6790</b>	\$ 210.00	<b>013-6790-A55</b>

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For other Anti-Reflection coatings append appropriate suffix (see pages 18 and 19). For smaller lenses see the Microlenses section. For other custom designs, please call.



Keeping your optics clean will both improve optical performance and increase the optic's lifetime. Please turn to page 33 for our complete selection of cleaning supplies.

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**BK-7 Plano Concave Lenses**

- Simple general use negative lenses
- Focal lengths from -15 to -200mm
- Diameters from 10.0 to 50.8mm
- Optional Anti-Reflection coatings available
- For additional sizes see Micro Optics

These simple negative lenses have many uses. Alone they form a virtual image of a distant object or collimated light source. Used in combination with other optics they reduce the power of the system. Sharp edges which are common in negative lenses are removed by beveling in order to reduce the likelihood of chipping. BK7 lenses are offered uncoated or with our A55 broadband visible (425-675nm) Anti-Reflection coating. In addition, a wide range of standard Anti-Reflection coatings for other wavelengths are available upon request.

**Specifications & Tolerances**Focal length:  $\pm 1\%$ Thickness:  $\pm 0.15\text{mm}$ 

Material: BK7 grade A

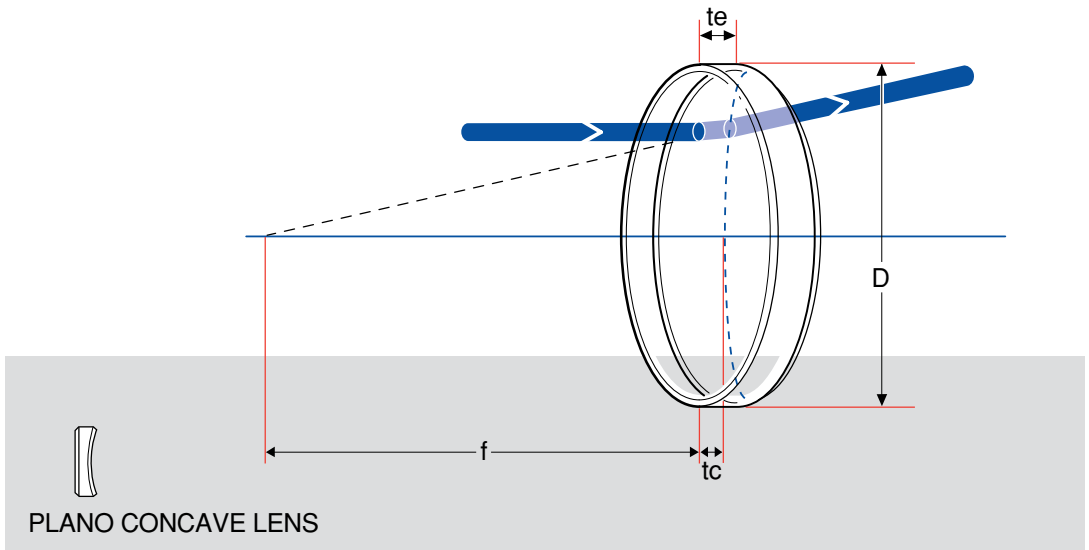
Clear aperture:  $>90\%$ 

Design wavelength: 546.1nm

Diameter:  $+0, -0.1\text{mm}$ Centration:  $\leq 1\text{arcmin}$ 

Surface quality: 20-10

Coating: Optional broadband Anti-Reflection 425-675nm



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## BK-7 Plano Concave Lenses

UNCOATED

AR COATED  
425-675nm

D (mm)	f (mm)	te (mm)	tc (mm)	fb (mm)	r (mm)	Centration (arcmin)	Price	PRODUCT NUMBER	Price	PRODUCT NUMBER
10.0	-15.0	3.8	2.0	-16.3	7.79	≤ 1	\$ 21.00	015-0040	\$ 40.00	015-0040-A55
10.0	-20.0	3.3	2.0	-21.3	10.38	≤ 1	\$ 21.00	015-0050	\$ 40.00	015-0050-A55
10.0	-25.0	3.0	2.0	-26.3	12.98	≤ 1	\$ 21.00	015-0060	\$ 40.00	015-0060-A55
10.0	-30.0	2.8	2.0	-31.3	15.57	≤ 1	\$ 19.00	015-0061	\$ 38.00	015-0061-A55
10.0	-40.0	2.6	2.0	-41.3	20.76	≤ 1	\$ 19.00	015-0062	\$ 38.00	015-0062-A55
10.0	-50.0	2.5	2.0	-51.3	25.95	≤ 1	\$ 19.00	015-0063	\$ 38.00	015-0063-A55
10.0	-60.0	2.4	2.0	-61.3	31.14	≤ 1	\$ 19.00	015-0041	\$ 38.00	015-0041-A55
10.0	-70.0	2.3	2.0	-71.3	36.33	≤ 1	\$ 19.00	015-0042	\$ 38.00	015-0042-A55
10.0	-80.0	2.3	2.0	-81.3	41.52	≤ 1	\$ 19.00	015-0043	\$ 38.00	015-0043-A55
10.0	-90.0	2.3	2.0	-91.3	46.71	≤ 1	\$ 19.00	015-0044	\$ 38.00	015-0044-A55
10.0	-100.0	2.2	2.0	-101.3	51.90	≤ 1	\$ 19.00	015-0045	\$ 38.00	015-0045-A55
12.7	-15.0	5.3	2.0	-16.3	7.79	≤ 1	\$ 21.00	015-0065	\$ 41.00	015-0065-A55
12.7	-20.0	4.2	2.0	-21.3	10.38	≤ 1	\$ 21.00	015-0066	\$ 41.00	015-0066-A55
12.7	-25.0	3.7	2.0	-26.3	12.98	≤ 1	\$ 21.00	015-0067	\$ 41.00	015-0067-A55
12.7	-30.0	3.4	2.0	-31.3	15.57	≤ 1	\$ 21.00	015-0068	\$ 41.00	015-0068-A55
15.0	-20.0	5.2	2.0	-21.3	10.38	≤ 1	\$ 22.00	015-0070	\$ 44.00	015-0070-A55
15.0	-25.0	4.4	2.0	-26.3	12.98	≤ 1	\$ 22.00	015-0080	\$ 44.00	015-0080-A55
15.0	-30.0	3.9	2.0	-31.3	15.57	≤ 1	\$ 21.00	015-0090	\$ 43.00	015-0090-A55
15.0	-40.0	3.4	2.0	-41.3	20.76	≤ 1	\$ 21.00	015-0095	\$ 43.00	015-0095-A55
15.0	-50.0	3.1	2.0	-51.3	25.95	≤ 1	\$ 21.00	015-0105	\$ 43.00	015-0105-A55
15.0	-60.0	2.9	2.0	-61.3	31.14	≤ 1	\$ 21.00	015-0106	\$ 43.00	015-0106-A55
15.0	-70.0	2.8	2.0	-71.3	36.33	≤ 1	\$ 21.00	015-0107	\$ 43.00	015-0107-A55
15.0	-80.0	2.7	2.0	-81.3	41.52	≤ 1	\$ 21.00	015-0104	\$ 43.00	015-0104-A55
15.0	-90.0	2.6	2.0	-91.3	46.71	≤ 1	\$ 21.00	015-0108	\$ 43.00	015-0108-A55
15.0	-100.0	2.5	2.0	-101.3	51.90	≤ 1	\$ 21.00	015-0109	\$ 43.00	015-0109-A55
20.0	-25.0	6.7	2.0	-26.3	12.98	≤ 1	\$ 23.00	015-0110	\$ 47.00	015-0110-A55
20.0	-30.0	5.6	2.0	-31.3	15.57	≤ 1	\$ 23.00	015-0120	\$ 47.00	015-0120-A55
20.0	-40.0	4.6	2.0	-41.3	20.76	≤ 1	\$ 23.00	015-0130	\$ 47.00	015-0130-A55
20.0	-50.0	4.0	2.0	-51.3	25.95	≤ 1	\$ 21.00	015-0140	\$ 45.00	015-0140-A55
20.0	-60.0	3.6	2.0	-61.3	31.14	≤ 1	\$ 21.00	015-0142	\$ 45.00	015-0142-A55
20.0	-70.0	3.4	2.0	-71.3	36.33	≤ 1	\$ 21.00	015-0144	\$ 45.00	015-0144-A55
20.0	-80.0	3.2	2.0	-81.3	41.52	≤ 1	\$ 21.00	015-0146	\$ 45.00	015-0146-A55
20.0	-90.0	3.1	2.0	-91.3	46.71	≤ 1	\$ 21.00	015-0147	\$ 45.00	015-0147-A55
20.0	-100.0	3.0	2.0	-101.3	51.90	≤ 1	\$ 21.00	015-0148	\$ 45.00	015-0148-A55
20.0	-120.0	2.8	2.0	-121.3	62.28	≤ 1	\$ 21.00	015-0149	\$ 45.00	015-0149-A55
20.0	-150.0	2.6	2.0	-151.3	77.85	≤ 1	\$ 21.00	015-0150	\$ 45.00	015-0150-A55
25.0	-30.0	8.3	2.0	-31.3	15.57	≤ 1	\$ 26.50	015-0160	\$ 50.50	015-0160-A55
25.0	-35.0	7.0	2.0	-36.3	18.17	≤ 1	\$ 26.50	015-0161	\$ 50.50	015-0161-A55
25.0	-40.0	6.2	2.0	-41.3	20.76	≤ 1	\$ 26.50	015-0165	\$ 50.50	015-0165-A55
25.0	-50.0	5.2	2.0	-51.3	25.95	≤ 1	\$ 23.00	015-0170	\$ 47.00	015-0170-A55
25.0	-60.0	4.6	2.0	-61.3	31.14	≤ 1	\$ 23.00	015-0175	\$ 47.00	015-0175-A55
25.0	-70.0	4.2	2.0	-71.3	36.33	≤ 1	\$ 23.00	015-0180	\$ 47.00	015-0180-A55
25.0	-80.0	3.9	2.0	-81.3	41.52	≤ 1	\$ 23.00	015-0190	\$ 47.00	015-0190-A55
25.0	-90.0	3.7	2.0	-91.3	46.71	≤ 1	\$ 23.00	015-0205	\$ 47.00	015-0205-A55
25.0	-100.0	3.5	2.0	-101.3	51.90	≤ 1	\$ 23.00	015-0220	\$ 47.00	015-0220-A55
25.0	-120.0	3.3	2.0	-121.3	62.28	≤ 1	\$ 23.00	015-0225	\$ 47.00	015-0225-A55
25.0	-150.0	3.0	2.0	-151.3	77.85	≤ 1	\$ 23.00	015-0230	\$ 47.00	015-0230-A55
25.0	-170.0	3.0	2.0	-171.3	88.23	≤ 1	\$ 23.00	015-0235	\$ 47.00	015-0235-A55
25.0	-200.0	2.8	2.0	-201.3	103.80	≤ 1	\$ 23.00	015-0240	\$ 47.00	015-0240-A55
25.4	-30.0	8.6	2.0	-31.3	15.57	≤ 1	\$ 26.50	015-0270	\$ 52.50	015-0270-A55
25.4	-40.0	6.3	2.0	-41.3	20.76	≤ 1	\$ 26.50	015-0275	\$ 52.50	015-0275-A55
25.4	-50.0	5.3	2.0	-51.3	25.95	≤ 1	\$ 26.50	015-0280	\$ 52.50	015-0280-A55
25.4	-60.0	4.7	2.0	-61.3	31.14	≤ 1	\$ 23.00	015-0282	\$ 49.50	015-0282-A55
25.4	-70.0	4.3	2.0	-71.3	36.33	≤ 1	\$ 23.00	015-0285	\$ 49.50	015-0285-A55
25.4	-80.0	4.0	2.0	-81.3	41.52	≤ 1	\$ 23.00	015-0290	\$ 49.50	015-0290-A55

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BK-7 Plano Concave Lenses  
(continued)

UNCOATED

AR COATED  
425-675nm

D (mm)	f (mm)	te (mm)	tc (mm)	fb (mm)	r (mm)	Centration (arcmin)	Price	PRODUCT NUMBER	Price	PRODUCT NUMBER
25.4	-90.0	3.8	2.0	-91.3	46.71	≤ 1	\$ 23.00	<b>015-0295</b>	\$ 49.50	<b>015-0295-A55</b>
25.4	-100.0	3.6	2.0	-101.3	51.90	≤ 1	\$ 23.00	<b>015-0330</b>	\$ 49.50	<b>015-0330-A55</b>
25.4	-150.0	3.0	2.0	-151.3	77.85	≤ 1	\$ 23.00	<b>015-0340</b>	\$ 49.50	<b>015-0340-A55</b>
25.4	-200.0	2.8	2.0	-201.3	103.80	≤ 1	\$ 23.00	<b>015-0350</b>	\$ 49.50	<b>015-0350-A55</b>
30.0	-35.0	9.9	2.0	-36.3	18.17	≤ 1	\$ 28.50	<b>015-0375</b>	\$ 54.50	<b>015-0375-A55</b>
30.0	-40.0	8.4	2.0	-41.3	20.76	≤ 1	\$ 28.50	<b>015-0380</b>	\$ 54.50	<b>015-0380-A55</b>
30.0	-50.0	6.8	2.0	-51.3	25.95	≤ 1	\$ 28.50	<b>015-0390</b>	\$ 54.50	<b>015-0390-A55</b>
30.0	-60.0	5.9	2.0	-61.3	31.14	≤ 1	\$ 28.50	<b>015-0410</b>	\$ 54.50	<b>015-0410-A55</b>
30.0	-70.0	5.2	2.0	-71.3	36.33	≤ 1	\$ 27.50	<b>015-0420</b>	\$ 53.50	<b>015-0420-A55</b>
30.0	-80.0	4.8	2.0	-81.3	41.52	≤ 1	\$ 27.50	<b>015-0440</b>	\$ 53.50	<b>015-0440-A55</b>
30.0	-90.0	4.5	2.0	-91.3	46.71	≤ 1	\$ 27.50	<b>015-0445</b>	\$ 53.50	<b>015-0445-A55</b>
30.0	-100.0	4.2	2.0	-101.3	51.90	≤ 1	\$ 27.50	<b>015-0450</b>	\$ 53.50	<b>015-0450-A55</b>
30.0	-120.0	3.8	2.0	-121.3	62.28	≤ 1	\$ 27.50	<b>015-0460</b>	\$ 53.50	<b>015-0460-A55</b>
30.0	-150.0	3.5	2.0	-151.3	77.85	≤ 1	\$ 25.00	<b>015-0470</b>	\$ 51.50	<b>015-0470-A55</b>
30.0	-170.0	3.3	2.0	-171.3	88.23	≤ 1	\$ 25.00	<b>015-0475</b>	\$ 51.50	<b>015-0475-A55</b>
30.0	-200.0	3.1	2.0	-201.3	103.80	≤ 1	\$ 25.00	<b>015-0480</b>	\$ 51.50	<b>015-0480-A55</b>
30.0	-220.0	3.0	2.0	-221.3	114.18	≤ 1	\$ 25.00	<b>015-0482</b>	\$ 51.50	<b>015-0482-A55</b>
30.0	-250.0	2.9	2.0	-251.3	129.75	≤ 1	\$ 25.00	<b>015-0485</b>	\$ 51.50	<b>015-0485-A55</b>
40.0	-50.0	11.4	2.0	-51.3	25.95	≤ 1	\$ 31.50	<b>015-0490</b>	\$ 60.00	<b>015-0490-A55</b>
40.0	-60.0	9.3	2.0	-61.3	31.14	≤ 1	\$ 31.50	<b>015-0495</b>	\$ 60.00	<b>015-0495-A55</b>
40.0	-70.0	8.0	2.0	-71.3	36.33	≤ 1	\$ 31.50	<b>015-0505</b>	\$ 60.00	<b>015-0505-A55</b>
40.0	-80.0	7.1	2.0	-81.3	41.52	≤ 1	\$ 30.50	<b>015-0510</b>	\$ 59.00	<b>015-0510-A55</b>
40.0	-100.0	6.0	2.0	-101.3	51.90	≤ 1	\$ 30.50	<b>015-0515</b>	\$ 59.00	<b>015-0515-A55</b>
50.0	-70.0	13.0	3.0	-72.0	36.33	≤ 1	\$ 40.00	<b>015-0540</b>	\$ 71.50	<b>015-0540-A55</b>
50.0	-80.0	11.4	3.0	-82.0	41.52	≤ 1	\$ 40.00	<b>015-0550</b>	\$ 71.50	<b>015-0550-A55</b>
50.0	-100.0	9.4	3.0	-102.0	51.90	≤ 1	\$ 36.00	<b>015-0560</b>	\$ 67.00	<b>015-0560-A55</b>
50.0	-120.0	8.2	3.0	-122.0	62.28	≤ 1	\$ 36.00	<b>015-0565</b>	\$ 67.00	<b>015-0565-A55</b>
50.0	-150.0	7.1	3.0	-152.0	77.85	≤ 1	\$ 36.00	<b>015-0570</b>	\$ 67.00	<b>015-0570-A55</b>
50.0	-170.0	6.6	3.0	-172.0	88.23	≤ 1	\$ 36.00	<b>015-0575</b>	\$ 67.00	<b>015-0575-A55</b>
50.0	-200.0	6.1	3.0	-202.0	103.80	≤ 1	\$ 36.00	<b>015-0580</b>	\$ 67.00	<b>015-0580-A55</b>
50.0	-220.0	5.8	3.0	-222.0	114.18	≤ 1	\$ 36.00	<b>015-0582</b>	\$ 67.00	<b>015-0582-A55</b>
50.0	-250.0	5.4	3.0	-252.0	129.75	≤ 1	\$ 36.00	<b>015-0585</b>	\$ 67.00	<b>015-0585-A55</b>
50.0	-300.0	5.0	3.0	-302.0	155.70	≤ 1	\$ 36.00	<b>015-0590</b>	\$ 67.00	<b>015-0590-A55</b>
50.8	-70.0	13.4	3.0	-72.0	36.33	≤ 1	\$ 40.00	<b>015-0610</b>	\$ 71.50	<b>015-0610-A55</b>
50.8	-80.0	11.7	3.0	-82.0	41.52	≤ 1	\$ 40.00	<b>015-0620</b>	\$ 71.50	<b>015-0620-A55</b>
50.8	-90.0	10.5	3.0	-92.0	46.71	≤ 1	\$ 40.00	<b>015-0625</b>	\$ 71.50	<b>015-0625-A55</b>
50.8	-100.0	9.6	3.0	-102.0	51.90	≤ 1	\$ 36.00	<b>015-0630</b>	\$ 67.00	<b>015-0630-A55</b>
50.8	-150.0	7.3	3.0	-152.0	77.85	≤ 1	\$ 36.00	<b>015-0640</b>	\$ 67.00	<b>015-0640-A55</b>
50.8	-200.0	6.2	3.0	-202.0	103.80	≤ 1	\$ 36.00	<b>015-0650</b>	\$ 67.00	<b>015-0650-A55</b>
50.8	-250.0	5.5	3.0	-252.0	129.75	≤ 1	\$ 36.00	<b>015-0660</b>	\$ 67.00	<b>015-0660-A55</b>
50.8	-300.0	5.1	3.0	-302.0	155.70	≤ 1	\$ 36.00	<b>015-0670</b>	\$ 67.00	<b>015-0670-A55</b>

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For other Anti-Reflection coatings append appropriate suffix (see pages 18 and 19).  
For smaller lenses see the Microlenses section. For other designs please call.

## BK-7 Biconcave Lenses

- Symmetrically concave negative lenses
- Focal lengths from -9.7 to -299.5mm
- Diameters from 10.0 to 50.8mm
- Complete range of optional Anti-Reflection coatings available
- For fused silica biconcave lenses see pages 66-68
- For additional sizes see Micro Optics



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

BK7 lenses are offered uncoated or with our A55 broadband visible (425-675nm) Anti-Reflection coating. In addition, a wide range of standard Anti-Reflection coatings for other wavelengths are available for these lenses.

These coatings are described on pages 18 and 19.

### Specifications & Tolerances

Focal length:  $\pm 1\%$

Thickness:  $\pm 0.15\text{mm}$

Surface quality: 20-10

Material: BK7, grade A

Design wavelength: 546.1nm

Diameter: +0, -0.1mm

Centration:  $\leq 1\text{arcmin}$

Clear aperture:  $>90\%$

Coating: Optional broadband Anti-Reflection 425-675nm



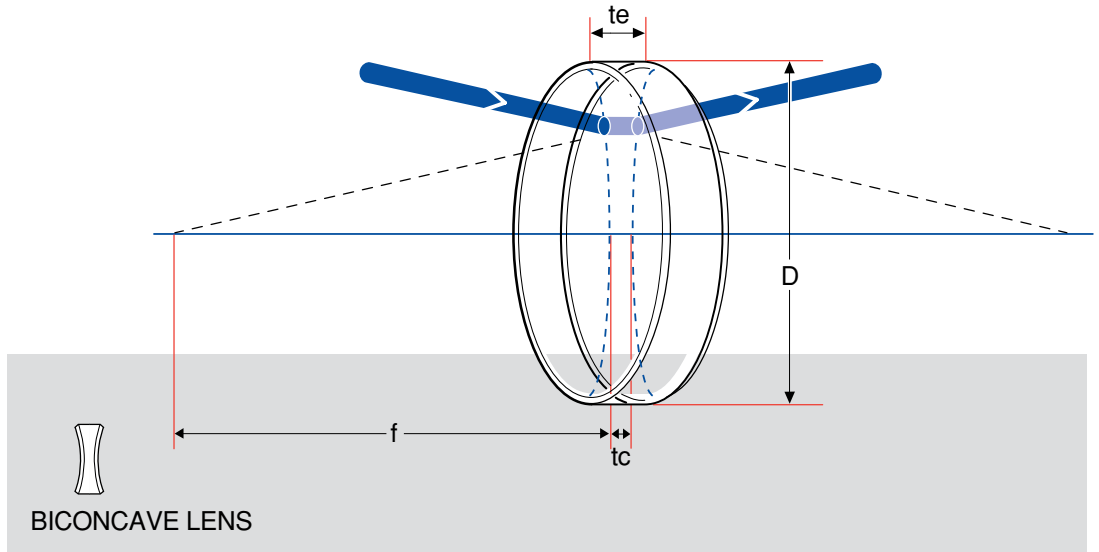
*Most of our lenses are available from stock and can be shipped to you the same day that your order is placed.*

*These biconcave lenses are suited to a wide variety of general applications including diverging a collimated laser beam, spreading a beam for detector coverage, and forming virtual images. The sizes listed are standard and we keep most configurations in stock at all times for immediate delivery. If you don't see the exact biconvex lens that you need, please ask.*

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BK-7 Biconcave Lenses

UNCOATED

AR COATED  
425-675nm

D (mm)	f (mm)	te (mm)	tc (mm)	fb (mm)	r (mm)	Centration (arcmin)	Price	PART NUMBER	Price	PART NUMBER
10.0	-9.7	4.6	2.0	-10.3	10.38	≤ 1	\$ 25.00	<b>017-0050</b>	\$ 44.00	017-0050-A55
10.0	-14.7	3.6	2.0	-15.3	15.57	≤ 1	\$ 25.00	<b>017-0060</b>	\$ 44.00	017-0060-A55
10.0	-19.7	3.2	2.0	-20.3	20.76	≤ 1	\$ 25.00	<b>017-0070</b>	\$ 44.00	017-0070-A55
10.0	-24.7	3.0	2.0	-25.3	25.95	≤ 1	\$ 25.00	<b>017-0080</b>	\$ 44.00	017-0080-A55
10.0	-29.7	2.8	2.0	-30.3	31.14	≤ 1	\$ 25.00	<b>017-0079</b>	\$ 44.00	017-0079-A55
10.0	-39.7	2.6	2.0	-40.3	41.52	≤ 1	\$ 25.00	<b>017-0077</b>	\$ 44.00	017-0077-A55
10.0	-49.7	2.5	2.0	-50.3	51.90	≤ 1	\$ 25.00	<b>017-0078</b>	\$ 44.00	017-0078-A55
12.7	-9.7	6.3	2.0	-10.4	10.38	≤ 1	\$ 24.00	<b>017-0081</b>	\$ 44.00	017-0081-A55
12.7	-14.7	4.7	2.0	-15.4	15.57	≤ 1	\$ 24.00	<b>017-0083</b>	\$ 44.00	017-0083-A55
12.7	-19.7	4.0	2.0	-20.4	20.76	≤ 1	\$ 24.00	<b>017-0085</b>	\$ 44.00	017-0085-A55
12.7	-24.7	3.6	2.0	-25.4	25.95	≤ 1	\$ 24.00	<b>017-0087</b>	\$ 44.00	017-0087-A55
15.0	-14.7	5.9	2.0	-15.3	15.57	≤ 1	\$ 25.00	<b>017-0090</b>	\$ 47.00	017-0090-A55
15.0	-19.7	4.8	2.0	-20.3	20.76	≤ 1	\$ 25.00	<b>017-0092</b>	\$ 47.00	017-0092-A55
15.0	-24.7	4.2	2.0	-25.3	25.95	≤ 1	\$ 25.00	<b>017-0094</b>	\$ 47.00	017-0094-A55
15.0	-29.7	3.8	2.0	-30.3	31.14	≤ 1	\$ 25.00	<b>017-0095</b>	\$ 47.00	017-0095-A55
15.0	-39.7	3.4	2.0	-40.3	41.52	≤ 1	\$ 25.00	<b>017-0096</b>	\$ 47.00	017-0096-A55
15.0	-49.7	3.1	2.0	-50.3	51.90	≤ 1	\$ 25.00	<b>017-0097</b>	\$ 47.00	017-0097-A55
20.0	-19.7	7.1	2.0	-20.3	20.76	≤ 1	\$ 27.50	<b>017-0110</b>	\$ 51.50	017-0110-A55
20.0	-24.7	6.0	2.0	-25.3	25.95	≤ 1	\$ 27.50	<b>017-0120</b>	\$ 51.50	017-0120-A55
20.0	-29.7	5.3	2.0	-30.3	31.14	≤ 1	\$ 27.50	<b>017-0130</b>	\$ 51.50	017-0130-A55
20.0	-39.7	4.4	2.0	-40.3	41.52	≤ 1	\$ 27.50	<b>017-0140</b>	\$ 51.50	017-0140-A55
20.0	-49.7	3.9	2.0	-50.3	51.90	≤ 1	\$ 27.50	<b>017-0150</b>	\$ 51.50	017-0150-A55
25.0	-24.7	8.4	2.0	-25.3	25.95	≤ 1	\$ 28.50	<b>017-0170</b>	\$ 52.50	017-0170-A55
25.0	-29.7	7.2	2.0	-30.3	31.14	≤ 1	\$ 28.50	<b>017-0172</b>	\$ 52.50	017-0172-A55
25.0	-34.7	6.4	2.0	-35.3	36.33	≤ 1	\$ 28.50	<b>017-0174</b>	\$ 52.50	017-0174-A55
25.0	-39.7	5.9	2.0	-40.3	41.52	≤ 1	\$ 28.50	<b>017-0176</b>	\$ 52.50	017-0176-A55
25.0	-49.7	5.1	2.0	-50.3	51.90	≤ 1	\$ 27.50	<b>017-0180</b>	\$ 51.50	017-0180-A55
25.0	-59.7	4.5	2.0	-60.3	62.28	≤ 1	\$ 27.50	<b>017-0182</b>	\$ 51.50	017-0182-A55
25.0	-69.7	4.2	2.0	-70.3	72.66	≤ 1	\$ 27.50	<b>017-0183</b>	\$ 51.50	017-0183-A55
25.0	-79.7	4.0	2.0	-80.3	83.04	≤ 1	\$ 27.50	<b>017-0190</b>	\$ 51.50	017-0190-A55
25.0	-89.7	3.7	2.0	-90.3	93.42	≤ 1	\$ 27.50	<b>017-0195</b>	\$ 51.50	017-0195-A55
25.0	-99.7	3.5	2.0	-100.3	103.80	≤ 1	\$ 27.50	<b>017-0220</b>	\$ 51.50	017-0220-A55
25.4	-24.7	8.6	2.0	-25.4	25.95	≤ 1	\$ 27.50	<b>017-0250</b>	\$ 53.50	017-0250-A55
25.4	-29.7	7.4	2.0	-30.4	31.14	≤ 1	\$ 27.50	<b>017-0254</b>	\$ 53.50	017-0254-A55

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## BK-7 Biconcave Lenses (continued)

UNCOATED

AR COATED  
425-675 nm

D (mm)	f (mm)	te (mm)	tc (mm)	fb (mm)	r (mm)	Centration (arcmin)	Price	PART NUMBER	Price	PART NUMBER
25.4	-39.7	6.0	2.0	-40.4	41.52	≤ 1	\$ 27.50	<b>017-0258</b>	\$ 53.50	017-0258-A55
25.4	-49.7	5.2	2.0	-50.4	51.90	≤ 1	\$ 27.50	<b>017-0260</b>	\$ 53.50	017-0260-A55
25.4	-59.7	4.6	2.0	-60.4	62.28	≤ 1	\$ 27.50	<b>017-0264</b>	\$ 53.50	017-0264-A55
25.4	-69.7	4.2	2.0	-70.4	72.66	≤ 1	\$ 27.50	<b>017-0266</b>	\$ 53.50	017-0266-A55
25.4	-79.7	4.0	2.0	-80.4	83.04	≤ 1	\$ 27.50	<b>017-0270</b>	\$ 53.50	017-0270-A55
25.4	-89.7	3.7	2.0	-90.4	93.42	≤ 1	\$ 27.50	<b>017-0275</b>	\$ 53.50	017-0275-A55
25.4	-99.7	3.6	2.0	-100.4	103.80	≤ 1	\$ 27.50	<b>017-0280</b>	\$ 53.50	017-0280-A55
25.4	-149.7	3.0	2.0	-150.4	155.70	≤ 1	\$ 27.50	<b>017-0290</b>	\$ 53.50	017-0290-A55
25.4	-199.7	2.8	2.0	-200.4	207.60	≤ 1	\$ 27.50	<b>017-0300</b>	\$ 53.50	017-0300-A55
30.0	-29.7	9.7	2.0	-30.3	31.14	≤ 1	\$ 29.50	<b>017-0340</b>	\$ 56.00	017-0340-A55
30.0	-34.7	8.5	2.0	-35.3	36.33	≤ 1	\$ 29.50	<b>017-0345</b>	\$ 56.00	017-0345-A55
30.0	-49.7	6.4	2.0	-50.3	51.90	≤ 1	\$ 29.50	<b>017-0350</b>	\$ 56.00	017-0350-A55
30.0	-59.7	5.7	2.0	-60.3	62.28	≤ 1	\$ 29.50	<b>017-0352</b>	\$ 56.00	017-0352-A55
30.0	-69.7	5.1	2.0	-70.3	72.66	≤ 1	\$ 29.50	<b>017-0355</b>	\$ 56.00	017-0355-A55
30.0	-79.7	4.7	2.0	-80.3	83.04	≤ 1	\$ 27.50	<b>017-0360</b>	\$ 53.50	017-0360-A55
30.0	-89.7	4.4	2.0	-90.3	93.42	≤ 1	\$ 27.50	<b>017-0365</b>	\$ 53.50	017-0365-A55
30.0	-99.7	4.2	2.0	-100.3	103.80	≤ 1	\$ 27.50	<b>017-0370</b>	\$ 53.50	017-0370-A55
40.0	-39.7	12.3	2.0	-40.3	41.52	≤ 1	\$ 37.00	<b>017-0400</b>	\$ 26.00	017-0400-A55
40.0	-49.7	10.0	2.0	-50.3	51.90	≤ 1	\$ 37.00	<b>017-0401</b>	\$ 65.00	017-0401-A55
40.0	-59.7	8.6	2.0	-60.3	62.28	≤ 1	\$ 37.00	<b>017-0402</b>	\$ 65.00	017-0402-A55
40.0	-69.7	7.6	2.0	-70.3	72.66	≤ 1	\$ 37.00	<b>017-0403</b>	\$ 65.00	017-0403-A55
40.0	-79.7	6.9	2.0	-80.3	83.04	≤ 1	\$ 35.00	<b>017-0404</b>	\$ 63.00	017-0404-A55
40.0	-89.7	6.3	2.0	-90.3	93.42	≤ 1	\$ 35.00	<b>017-0405</b>	\$ 63.00	017-0405-A55
40.0	-99.7	5.9	2.0	-100.3	103.80	≤ 1	\$ 35.00	<b>017-0406</b>	\$ 63.00	017-0406-A55
50.0	-49.5	15.8	3.0	-50.5	51.90	≤ 1	\$ 42.00	<b>017-0399</b>	\$ 73.50	017-0399-A55
50.0	-59.5	13.5	3.0	-60.5	62.28	≤ 1	\$ 42.00	<b>017-0391</b>	\$ 73.50	017-0391-A55
50.0	-69.5	11.9	3.0	-70.5	72.66	≤ 1	\$ 42.00	<b>017-0392</b>	\$ 73.50	017-0392-A55
50.0	-79.5	10.7	3.0	-80.5	83.04	≤ 1	\$ 42.00	<b>017-0393</b>	\$ 73.50	017-0393-A55
50.0	-89.5	9.8	3.0	-90.5	93.42	≤ 1	\$ 40.00	<b>017-0394</b>	\$ 71.50	017-0394-A55
50.0	-99.5	9.1	3.0	-100.5	103.80	≤ 1	\$ 40.00	<b>017-0395</b>	\$ 71.50	017-0395-A55
50.8	-49.5	16.3	3.0	-50.5	51.90	≤ 1	\$ 42.00	<b>017-0420</b>	\$ 73.50	017-0420-A55
50.8	-59.5	13.8	3.0	-60.5	62.28	≤ 1	\$ 42.00	<b>017-0425</b>	\$ 73.50	017-0425-A55
50.8	-69.5	12.2	3.0	-70.5	72.66	≤ 1	\$ 42.00	<b>017-0430</b>	\$ 73.50	017-0430-A55
50.8	-79.5	11.0	3.0	-80.5	83.04	≤ 1	\$ 42.00	<b>017-0440</b>	\$ 73.50	017-0440-A55
50.8	-89.5	10.0	3.0	-90.5	93.42	≤ 1	\$ 40.00	<b>017-0445</b>	\$ 71.50	017-0445-A55
50.8	-99.5	9.3	3.0	-100.5	103.80	≤ 1	\$ 40.00	<b>017-0450</b>	\$ 71.50	017-0450-A55
50.8	-149.5	7.2	3.0	-150.5	155.70	≤ 1	\$ 40.00	<b>017-0460</b>	\$ 71.50	017-0460-A55
50.8	-199.5	6.1	3.0	-200.5	207.60	≤ 1	\$ 40.00	<b>017-0470</b>	\$ 71.50	017-0470-A55
50.8	-249.5	5.5	3.0	-250.5	259.50	≤ 1	\$ 40.00	<b>017-0480</b>	\$ 71.50	017-0480-A55
50.8	-299.5	5.1	3.0	-300.5	311.40	≤ 1	\$ 40.00	<b>017-0490</b>	\$ 71.50	017-0490-A55

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## Fused Silica Plano Convex Lenses

- Simple positive fused silica lenses for general use
- Focal lengths from 8 to 5000mm
- Diameters from 5 to 50.8mm
- Complete range of optional Anti-Reflection coatings available



*Plano convex lenses are essentially best-form lenses when used at infinite or near-infinite conjugate ratios. With their positive focal lengths they will converge incident collimated light and form both real and virtual images. Plano convex lenses are often used in simple telescopes, collimators, and magnification or condensing systems.*

These are the simplest form of lens having a flat surface on one side and a spherical surface on the other. They are also very close to the form which minimizes spherical aberration for infinite conjugate applications.

We have a vast range of different diameters and focal lengths. The lenses listed here are standards. Please call if you do not see the lens you need. We have both larger and smaller lenses and many other diameters to choose from. However, we do try to keep these standards available for quick delivery. For very small lenses see the section on Microlenses.

Our fused silica lenses are made from Ultra-Violet quality synthetic fused silica. These lenses are best used for applications which require either the superior Ultra-Violet or IR transmission or the improved hardness of silica. Our silica lenses are provided uncoated, however a wide range of standard Anti-Reflection coatings is available for these lenses. These coatings are described on pages 18 and 19.

## Specifications &amp; Tolerances

Focal length:  $\pm 1\%$  (Diameter  $\geq 10\text{mm}$ )  
 $\pm 2\%$  (Diameter  $< 10\text{mm}$ )

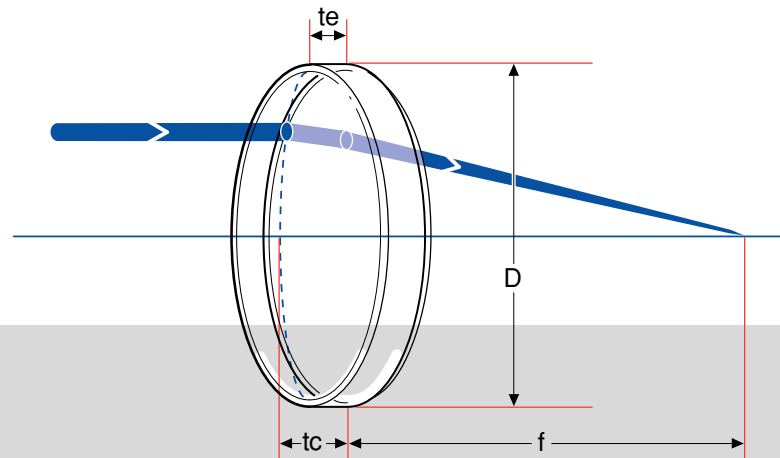
Thickness:  $\pm 0.15\text{mm}$

Material: Synthetic fused silica,

Diameter:  $+0, -0.1\text{mm}$

Clear aperture:  $>90\%$

Coating: Optional (see pages 18 and 19)



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## Fused Silica Plano Convex Lenses

D (mm)	f (mm)	tc (mm)	te (mm)	fb (mm)	r (mm)	Centration (arcmin)	Surface Quality	Price	PART NUMBER
5.0	8.0	2.5	1.6	6.3	3.68	≤ 3	40 - 20	\$ 79.00	014-0001
5.0	9.0	2.3	1.4	7.6	4.14	≤ 3	40 - 20	\$ 79.00	014-0002
5.0	10.0	2.1	1.4	8.6	4.60	≤ 3	40 - 20	\$ 79.00	014-0003
5.0	12.0	1.9	1.3	10.7	5.52	≤ 3	40 - 20	\$ 78.00	014-0004
5.0	15.0	1.7	1.2	13.8	6.90	≤ 3	40 - 20	\$ 78.00	014-0005
5.0	20.0	1.5	1.2	19.0	9.20	≤ 3	40 - 20	\$ 78.00	014-0006
5.0	25.0	1.4	1.1	24.0	11.50	≤ 3	40 - 20	\$ 78.00	014-0007
5.0	30.0	1.3	1.1	29.1	13.80	≤ 3	40 - 20	\$ 78.00	014-0008
6.0	8.0	2.5	1.0	6.3	3.68	≤ 3	40 - 20	\$ 79.00	014-0010
6.0	9.0	2.3	1.0	7.4	4.14	≤ 3	40 - 20	\$ 79.00	014-0015
6.0	10.0	2.1	1.0	8.6	4.60	≤ 3	40 - 20	\$ 79.00	014-0020
6.0	12.0	1.9	1.0	10.7	5.52	≤ 3	40 - 20	\$ 79.00	014-0025
6.0	15.0	1.7	1.0	13.8	6.90	≤ 3	40 - 20	\$ 79.00	014-0030
6.0	20.0	1.5	1.0	19.0	9.20	≤ 3	40 - 20	\$ 79.00	014-0040
6.0	25.0	1.4	1.0	24.0	11.50	≤ 3	40 - 20	\$ 79.00	014-0050
6.0	30.0	1.3	1.0	29.1	13.80	≤ 3	40 - 20	\$ 79.00	014-0055
7.0	10.0	3.8	2.2	7.4	4.60	≤ 3	40 - 20	\$ 79.00	014-0060
7.0	12.0	3.2	2.0	9.8	5.52	≤ 3	40 - 20	\$ 79.00	014-0062
7.0	15.0	2.8	1.8	13.1	6.90	≤ 3	40 - 20	\$ 79.00	014-0064
7.0	20.0	2.4	1.7	18.3	9.20	≤ 3	40 - 20	\$ 79.00	014-0066
7.0	25.0	2.2	1.7	23.5	11.50	≤ 3	40 - 20	\$ 79.00	014-0068
7.0	30.0	2.1	1.6	28.6	13.80	≤ 3	40 - 20	\$ 79.00	014-0070
7.0	40.0	1.9	1.6	38.7	18.40	≤ 3	40 - 20	\$ 79.00	014-0072
7.0	50.0	1.9	1.6	48.7	23.00	≤ 3	40 - 20	\$ 79.00	014-0074
8.0	10.0	3.8	1.5	7.4	4.60	≤ 3	40 - 20	\$ 79.00	014-0080
8.0	12.0	3.2	1.5	9.8	5.52	≤ 3	40 - 20	\$ 79.00	014-0082
8.0	15.0	2.8	1.5	13.1	6.90	≤ 3	40 - 20	\$ 79.00	014-0084
8.0	20.0	2.4	1.5	18.3	9.20	≤ 3	40 - 20	\$ 79.00	014-0086
8.0	25.0	2.2	1.5	23.5	11.50	≤ 3	40 - 20	\$ 79.00	014-0088
8.0	30.0	2.1	1.5	28.6	13.80	≤ 3	40 - 20	\$ 79.00	014-0090
8.0	40.0	1.9	1.5	38.7	18.40	≤ 3	40 - 20	\$ 79.00	014-0092
8.0	50.0	1.9	1.5	48.7	23.00	≤ 3	40 - 20	\$ 79.00	014-0094
10.0	15.0	4.1	2.0	12.2	6.90	≤ 1	20 - 10	\$ 86.00	014-0110
10.0	20.0	3.5	2.0	17.6	9.20	≤ 1	20 - 10	\$ 86.00	014-0120
10.0	25.0	3.1	2.0	22.8	11.50	≤ 1	20 - 10	\$ 86.00	014-0125
10.0	30.0	2.9	2.0	28.0	13.80	≤ 1	20 - 10	\$ 77.00	014-0130
10.0	40.0	2.7	2.0	38.2	18.40	≤ 1	20 - 10	\$ 77.00	014-0135
10.0	50.0	2.6	2.0	48.3	23.00	≤ 1	20 - 10	\$ 77.00	014-0140
10.0	60.0	2.5	2.0	58.3	27.60	≤ 1	20 - 10	\$ 77.00	014-0142
10.0	70.0	2.4	2.0	68.4	32.20	≤ 1	20 - 10	\$ 77.00	014-0144
10.0	80.0	2.3	2.0	78.4	36.80	≤ 1	20 - 10	\$ 77.00	014-0146
10.0	90.0	2.3	2.0	88.4	41.40	≤ 1	20 - 10	\$ 77.00	014-0147
10.0	100.0	2.3	2.0	98.4	46.00	≤ 1	20 - 10	\$ 77.00	014-0148
12.7	15.0	6.2	2.0	10.8	6.90	≤ 1	20 - 10	\$ 86.00	014-0150
12.7	20.0	4.5	2.0	16.9	9.20	≤ 1	20 - 10	\$ 86.00	014-0160
12.7	25.0	3.9	2.0	22.3	11.50	≤ 1	20 - 10	\$ 86.00	014-0170
12.7	40.0	3.1	2.0	37.9	18.40	≤ 1	20 - 10	\$ 77.00	014-0180
12.7	50.0	2.9	2.0	48.0	23.00	≤ 1	20 - 10	\$ 77.00	014-0190
15.0	20.0	5.9	2.0	16.0	9.20	≤ 1	20 - 10	\$ 89.00	014-0220
15.0	25.0	4.8	2.0	21.7	11.50	≤ 1	20 - 10	\$ 88.00	014-0230
15.0	30.0	4.2	2.0	27.1	13.80	≤ 1	20 - 10	\$ 88.00	014-0240

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## Fused Silica Plano Convex Lenses (continued)

## Spherical Lenses

## Cylindrical Lenses

## Lens Kits

## Achromatic Doublets

## Multi-Element

## Micro Optics

## Mirrors

## Prisms

## Substrates &amp; Windows

## Beamsplitters

## Polarizers

## Filter &amp; Apertures

	D (mm)	f (mm)	tc (mm)	te (mm)	fb (mm)	r (mm)	Centration (arcmin)	Surface Quality	Price	PART NUMBER
	15.0	40.0	3.6	2.0	37.5	18.40	≤ 1	20 - 10	\$ 82.00	014-0250
	15.0	50.0	3.3	2.0	47.8	23.00	≤ 1	20 - 10	\$ 82.00	014-0260
	15.0	60.0	3.0	2.0	57.9	27.60	≤ 1	20 - 10	\$ 82.00	014-0262
	15.0	70.0	2.9	2.0	68.0	32.20	≤ 1	20 - 10	\$ 82.00	014-0264
	15.0	80.0	2.8	2.0	78.1	36.80	≤ 1	20 - 10	\$ 82.00	014-0266
	15.0	90.0	2.7	2.0	88.2	41.40	≤ 1	20 - 10	\$ 82.00	014-0267
	15.0	100.0	2.6	2.0	98.3	46.00	≤ 1	20 - 10	\$ 82.00	014-0268
	20.0	25.0	7.8	2.0	19.6	11.50	≤ 1	20 - 10	\$ 88.00	014-0270
	20.0	30.0	6.3	2.0	25.7	13.80	≤ 1	20 - 10	\$ 88.00	014-0280
	20.0	40.0	5.0	2.0	36.6	18.40	≤ 1	20 - 10	\$ 88.00	014-0290
	20.0	50.0	4.3	2.0	47.1	23.00	≤ 1	20 - 10	\$ 88.00	014-0330
	20.0	60.0	3.9	2.0	57.3	27.60	≤ 1	20 - 10	\$ 88.00	014-0332
	20.0	70.0	3.6	2.0	67.5	32.20	≤ 1	20 - 10	\$ 88.00	014-0334
	20.0	80.0	3.4	2.0	77.7	36.80	≤ 1	20 - 10	\$ 88.00	014-0336
	20.0	90.0	3.2	2.0	87.8	41.40	≤ 1	20 - 10	\$ 88.00	014-0338
	20.0	100.0	3.1	2.0	97.9	46.00	≤ 1	20 - 10	\$ 88.00	014-0340
	20.0	120.0	2.9	2.0	118.0	55.20	≤ 1	20 - 10	\$ 88.00	014-0341
	20.0	150.0	2.7	2.0	148.1	69.00	≤ 1	20 - 10	\$ 88.00	014-0342
	20.0	170.0	2.6	2.0	168.2	78.20	≤ 1	20 - 10	\$ 88.00	014-0343
	20.0	200.0	2.5	2.0	198.3	92.00	≤ 1	20 - 10	\$ 88.00	014-0344
	25.0	30.0	10.0	2.0	23.2	13.80	≤ 1	20 - 10	\$ 88.00	014-0350
	25.0	35.0	8.0	2.0	29.6	16.10	≤ 1	20 - 10	\$ 88.00	014-0355
	25.0	40.0	6.9	2.0	35.3	18.40	≤ 1	20 - 10	\$ 88.00	014-0360
	25.0	50.0	5.7	2.0	46.1	23.00	≤ 1	20 - 10	\$ 88.00	014-0370
	25.0	60.0	5.0	2.0	56.6	27.60	≤ 1	20 - 10	\$ 88.00	014-0372
	25.0	70.0	4.5	2.0	66.9	32.20	≤ 1	20 - 10	\$ 88.00	014-0375
	25.0	80.0	4.2	2.0	77.1	36.80	≤ 1	20 - 10	\$ 88.00	014-0380
	25.0	90.0	3.9	2.0	87.3	41.40	≤ 1	20 - 10	\$ 86.00	014-0385
	25.0	100.0	3.7	2.0	97.4	46.00	≤ 1	20 - 10	\$ 86.00	014-0390
	25.0	120.0	3.4	2.0	117.6	55.20	≤ 1	20 - 10	\$ 79.00	014-0410
	25.0	150.0	3.1	2.0	147.8	69.00	≤ 1	20 - 10	\$ 79.00	014-0440
	25.0	170.0	3.0	2.0	167.9	78.20	≤ 1	20 - 10	\$ 79.00	014-0445
	25.0	200.0	2.9	2.0	198.0	92.00	≤ 1	20 - 10	\$ 79.00	014-0450
	25.0	220.0	2.8	2.0	218.1	101.20	≤ 1	20 - 10	\$ 79.00	014-0455
	25.0	250.0	2.7	2.0	248.2	115.00	≤ 1	20 - 10	\$ 79.00	014-0460
	25.4	30.0	10.0	1.6	23.2	13.80	≤ 1	20 - 10	\$ 88.00	014-0490
	25.4	35.0	8.0	1.8	29.5	16.10	≤ 1	20 - 10	\$ 88.00	014-0500
	25.4	40.0	6.9	1.8	35.3	18.40	≤ 1	20 - 10	\$ 88.00	014-0520
	25.4	50.0	5.7	1.9	46.1	23.00	≤ 1	20 - 10	\$ 88.00	014-0550
	25.4	60.0	5.0	1.9	56.6	27.60	≤ 1	20 - 10	\$ 88.00	014-0552
	25.4	70.0	4.5	1.9	66.9	32.20	≤ 1	20 - 10	\$ 84.00	014-0555
	25.4	80.0	4.2	1.9	77.1	36.80	≤ 1	20 - 10	\$ 84.00	014-0560
	25.4	90.0	3.9	1.9	87.3	41.40	≤ 1	20 - 10	\$ 84.00	014-0565
	25.4	100.0	3.7	1.9	97.5	46.00	≤ 1	20 - 10	\$ 84.00	014-0570
	25.4	150.0	3.1	1.9	147.9	69.00	≤ 1	20 - 10	\$ 84.00	014-0580
	25.4	200.0	2.9	1.9	198.0	92.00	≤ 3	20 - 10	\$ 84.00	014-0590
	25.4	250.0	2.7	1.9	248.2	115.00	≤ 3	20 - 10	\$ 84.00	014-0600
	25.4	300.0	2.5	1.9	298.3	138.00	≤ 3	20 - 10	\$ 84.00	014-0605
	25.4	400.0	2.3	1.9	398.4	184.00	≤ 3	20 - 10	\$ 84.00	014-0615
	25.4	500.0	2.3	1.9	498.0	230.00	≤ 3	20 - 10	\$ 84.00	014-0625
	25.4	1000.0	2.1	1.9	998.6	460.00	≤ 3	20 - 10	\$ 84.00	014-0650
	30.0	35.0	12.3	2.0	26.6	16.10	≤ 1	20 - 10	\$ 94.50	014-0690
	30.0	40.0	9.7	2.0	33.3	18.40	≤ 1	20 - 10	\$ 94.50	014-0770
	30.0	50.0	7.6	2.0	44.8	23.00	≤ 1	20 - 10	\$ 94.50	014-0780

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D (mm)	f (mm)	tc (mm)	te (mm)	fb (mm)	r (mm)	Centration (arcmin)	Surface Quality	Price	PART NUMBER
30.0	60.0	6.4	2.0	55.6	27.60	≤ 1	20 - 10	\$ 94.50	014-0790
30.0	70.0	5.7	2.0	66.1	32.20	≤ 1	20 - 10	\$ 94.50	014-0880
30.0	80.0	5.2	2.0	76.4	36.80	≤ 1	20 - 10	\$ 94.50	014-0890
30.0	90.0	4.8	2.0	86.7	41.40	≤ 1	20 - 10	\$ 94.50	014-0900
30.0	100.0	4.5	2.0	96.9	46.00	≤ 1	20 - 10	\$ 94.50	014-0990
30.0	120.0	4.1	2.0	117.2	55.20	≤ 1	20 - 10	\$ 94.50	014-1110
30.0	150.0	3.7	2.0	147.5	69.00	≤ 1	20 - 10	\$ 94.50	014-1120
30.0	170.0	3.5	2.0	167.6	78.20	≤ 1	20 - 10	\$ 94.50	014-1125
30.0	200.0	3.2	2.0	197.8	92.00	≤ 1	20 - 10	\$ 94.50	014-1130
30.0	220.0	3.1	2.0	217.9	101.20	≤ 1	20 - 10	\$ 94.50	014-1132
30.0	250.0	3.0	2.0	248.0	115.00	≤ 1	20 - 10	\$ 94.50	014-1135
30.0	300.0	2.8	2.0	298.1	138.00	≤ 1	20 - 10	\$ 94.50	014-1140
30.0	350.0	2.7	2.0	348.2	161.00	≤ 3	20 - 10	\$ 94.50	014-1141
30.0	400.0	2.6	2.0	398.2	184.00	≤ 3	20 - 10	\$ 94.50	014-1142
30.0	450.0	2.5	2.0	448.3	207.00	≤ 3	20 - 10	\$ 94.50	014-1143
30.0	500.0	2.5	2.0	498.3	230.00	≤ 3	20 - 10	\$ 94.50	014-1144
30.0	600.0	2.4	2.0	598.4	276.00	≤ 3	20 - 10	\$ 94.50	014-1145
30.0	700.0	2.4	2.0	698.4	322.00	≤ 3	20 - 10	\$ 94.50	014-1146
30.0	800.0	2.3	2.0	798.4	368.00	≤ 3	20 - 10	\$ 94.50	014-1147
30.0	900.0	2.3	2.0	898.4	414.00	≤ 3	20 - 10	\$ 94.50	014-1148
30.0	1000.0	2.2	2.0	998.5	460.00	≤ 3	20 - 10	\$ 94.50	014-1149
30.0	1200.0	2.2	2.0	1198.5	552.00	≤ 3	20 - 10	\$ 94.50	014-1150
30.0	1500.0	2.2	2.0	1498.5	690.00	≤ 3	20 - 10	\$ 94.50	014-1151
30.0	2000.0	2.1	2.0	1998.5	920.00	≤ 3	20 - 10	\$ 94.50	014-1152
30.0	2500.0	2.1	2.0	2498.6	1150.00	≤ 3	20 - 10	\$ 94.50	014-1153
30.0	3000.0	2.1	2.0	2998.6	1380.00	≤ 3	20 - 10	\$ 94.50	014-1154
30.0	4000.0	2.1	2.0	3998.6	1840.00	≤ 3	20 - 10	\$ 94.50	014-1155
30.0	5000.0	2.1	2.0	4998.6	2300.00	≤ 3	20 - 10	\$ 94.50	014-1156
40.0	50.0	13.6	2.0	40.7	23.00	≤ 1	20 - 10	\$ 116.00	014-1158
40.0	60.0	10.6	2.0	52.8	27.60	≤ 1	20 - 10	\$ 116.00	014-1160
40.0	70.0	9.0	2.0	63.9	32.20	≤ 1	20 - 10	\$ 116.00	014-1165
40.0	80.0	7.9	2.0	74.6	36.80	≤ 1	20 - 10	\$ 110.00	014-1170
40.0	90.0	7.2	2.0	85.1	41.40	≤ 1	20 - 10	\$ 110.00	014-1175
40.0	100.0	6.6	2.0	95.5	46.00	≤ 1	20 - 10	\$ 110.00	014-1180
40.0	120.0	5.8	2.0	116.1	55.20	≤ 1	20 - 10	\$ 110.00	014-1185
40.0	150.0	5.0	2.0	146.6	69.00	≤ 1	20 - 10	\$ 110.00	014-1190
40.0	170.0	4.6	2.0	166.8	78.20	≤ 1	20 - 10	\$ 110.00	014-1195
40.0	200.0	4.2	2.0	197.1	92.00	≤ 1	20 - 10	\$ 110.00	014-1220
40.0	220.0	4.0	2.0	217.3	101.20	≤ 1	20 - 10	\$ 110.00	014-1218
40.0	250.0	3.8	2.0	247.4	115.00	≤ 1	20 - 10	\$ 110.00	014-1221
40.0	300.0	3.5	2.0	297.6	138.00	≤ 1	20 - 10	\$ 110.00	014-1223
40.0	350.0	3.2	2.0	347.8	161.00	≤ 1	20 - 10	\$ 110.00	014-1225
40.0	400.0	3.1	2.0	397.9	184.00	≤ 1	20 - 10	\$ 110.00	014-1227
40.0	450.0	3.0	2.0	448.0	207.00	≤ 3	20 - 10	\$ 110.00	014-1228
40.0	500.0	2.9	2.0	498.0	230.00	≤ 3	20 - 10	\$ 110.00	014-1229
50.0	70.0	14.9	3.0	59.8	32.20	≤ 1	20 - 10	\$ 221.00	014-1230
50.0	80.0	12.8	3.0	71.2	36.80	≤ 1	20 - 10	\$ 221.00	014-1240
50.0	90.0	11.4	3.0	82.2	41.40	≤ 1	20 - 10	\$ 221.00	014-1245
50.0	100.0	10.4	3.0	92.9	46.00	≤ 1	20 - 10	\$ 221.00	014-1250
50.0	120.0	9.0	3.0	113.8	55.20	≤ 1	20 - 10	\$ 221.00	014-1255
50.0	150.0	7.7	3.0	144.7	69.00	≤ 1	20 - 10	\$ 194.00	014-1260
50.0	170.0	7.1	3.0	165.1	78.20	≤ 1	20 - 10	\$ 187.00	014-1265
50.0	200.0	6.5	3.0	195.6	92.00	≤ 1	20 - 10	\$ 168.00	014-1270
50.0	220.0	6.1	3.0	215.8	101.20	≤ 1	20 - 10	\$ 168.00	014-1272
50.0	250.0	5.8	3.0	246.1	115.00	≤ 1	20 - 10	\$ 168.00	014-1275
50.0	300.0	5.3	3.0	296.4	138.00	≤ 1	20 - 10	\$ 168.00	014-1280

## Spherical Lenses

## Cylindrical Lenses

## Lens Kits

## Achromatic Doublets

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## Polarizers

## Filter &amp; Apertures

	D (mm)	f (mm)	tc (mm)	te (mm)	fb (mm)	r (mm)	Centration (arcmin)	Surface Quality	Price	PART NUMBER
	50.0	350.0	5.0	3.0	346.6	161.00	≤ 1	20 - 10	\$ 168.00	014-1282
	50.0	400.0	4.7	3.0	396.8	184.00	≤ 1	20 - 10	\$ 168.00	014-1285
	50.0	450.0	4.5	3.0	446.9	207.00	≤ 1	20 - 10	\$ 168.00	014-1287
	50.0	500.0	4.4	3.0	497.0	230.00	≤ 1	20 - 10	\$ 168.00	014-1290
	50.0	600.0	4.1	3.0	597.2	276.00	≤ 3	20 - 10	\$ 168.00	014-1310
	50.0	700.0	4.0	3.0	697.3	322.00	≤ 3	20 - 10	\$ 168.00	014-1315
	50.0	800.0	3.9	3.0	797.4	368.00	≤ 3	20 - 10	\$ 168.00	014-1320
	50.0	900.0	3.8	3.0	897.4	414.00	≤ 3	20 - 10	\$ 168.00	014-1325
	50.0	1000.0	3.7	3.0	997.5	460.00	≤ 3	20 - 10	\$ 168.00	014-1330
	50.0	1200.0	3.6	3.0	1197.6	552.00	≤ 3	20 - 10	\$ 168.00	014-1331
	50.0	1500.0	3.5	3.0	1497.6	690.00	≤ 3	20 - 10	\$ 168.00	014-1332
	50.0	2000.0	3.3	3.0	1997.7	920.00	≤ 3	20 - 10	\$ 168.00	014-1333
	50.0	2500.0	3.3	3.0	2497.8	1150.00	≤ 3	20 - 10	\$ 168.00	014-1334
	50.0	3000.0	3.2	3.0	2997.8	1380.00	≤ 3	20 - 10	\$ 168.00	014-1335
	50.0	4000.0	3.2	3.0	3997.8	1840.00	≤ 3	20 - 10	\$ 168.00	014-1336
	50.0	5000.0	3.1	3.0	4997.9	2300.00	≤ 3	20 - 10	\$ 168.00	014-1337
	50.8	70.0	14.9	2.5	59.8	32.20	≤ 1	20 - 10	\$ 221.00	014-1339
	50.8	80.0	12.8	2.6	71.2	36.80	≤ 1	20 - 10	\$ 221.00	014-1340
	50.8	90.0	11.4	2.7	82.2	41.40	≤ 1	20 - 10	\$ 221.00	014-1345
	50.8	100.0	10.4	2.8	92.9	46.00	≤ 1	20 - 10	\$ 221.00	014-1350
	50.8	120.0	9.0	2.8	113.8	55.20	≤ 1	20 - 10	\$ 210.00	014-1355
	50.8	150.0	7.7	2.9	144.7	69.00	≤ 1	20 - 10	\$ 200.00	014-1360
	50.8	170.0	7.1	2.9	165.1	78.20	≤ 1	20 - 10	\$ 189.00	014-1365
	50.8	200.0	6.5	2.9	195.6	92.00	≤ 1	20 - 10	\$ 184.00	014-1370
	50.8	250.0	5.7	2.9	246.1	115.00	≤ 1	20 - 10	\$ 184.00	014-1375
	50.8	300.0	5.3	2.9	296.4	138.00	≤ 1	20 - 10	\$ 184.00	014-1380
	50.8	400.0	4.7	2.9	396.8	184.00	≤ 1	20 - 10	\$ 184.00	014-1390
	50.8	500.0	4.4	3.0	497.0	230.00	≤ 1	20 - 10	\$ 184.00	014-1400
	50.8	1000.0	3.7	3.0	997.5	460.00	≤ 3	20 - 10	\$ 184.00	014-1425
	60.0	80.0	18.5	3.0	67.3	36.80	≤ 1	20 - 10	\$ 325.00	014-1465
	60.0	90.0	15.9	3.0	79.1	41.40	≤ 1	20 - 10	\$ 325.00	014-1470
	60.0	100.0	14.1	3.0	90.3	46.00	≤ 1	20 - 10	\$ 325.00	014-1475
	60.0	120.0	11.9	3.0	111.9	55.20	≤ 1	20 - 10	\$ 280.00	014-1480
	60.0	150.0	9.9	3.0	143.2	69.00	≤ 1	20 - 10	\$ 280.00	014-1485
	60.0	170.0	9.0	3.0	163.8	78.20	≤ 1	20 - 10	\$ 280.00	014-1490
	60.0	200.0	8.0	3.0	194.5	92.00	≤ 1	20 - 10	\$ 280.00	014-1495
	60.0	220.0	7.5	3.0	214.8	101.20	≤ 1	20 - 10	\$ 280.00	014-1500
	60.0	250.0	7.0	3.0	245.2	115.00	≤ 1	20 - 10	\$ 280.00	014-1505
	60.0	300.0	6.3	3.0	295.7	138.00	≤ 1	20 - 10	\$ 280.00	014-1510
	60.0	350.0	5.8	3.0	346.0	161.00	≤ 1	20 - 10	\$ 280.00	014-1515
	60.0	400.0	5.5	3.0	396.3	184.00	≤ 1	20 - 10	\$ 280.00	014-1520
	60.0	450.0	5.2	3.0	446.5	207.00	≤ 1	20 - 10	\$ 280.00	014-1525
	60.0	500.0	5.0	3.0	496.6	230.00	≤ 1	20 - 10	\$ 280.00	014-1530
ORDERING	100.0	200.0	17.8	3.0	187.8	92.00	≤ 1	20 - 10	\$ 895.00	014-1565
&	100.0	250.0	14.4	3.0	240.1	115.00	≤ 1	20 - 10	\$ 855.00	014-1570
TECHNICAL SUPPORT	100.0	300.0	12.4	3.0	291.5	138.00	≤ 1	20 - 10	\$ 825.00	014-1575
(949) 851-5881	100.0	350.0	11.0	3.0	342.5	161.00	≤ 1	20 - 10	\$ 825.00	014-1580
FAX (949) 851-5058	100.0	400.0	9.9	3.0	393.2	184.00	≤ 1	20 - 10	\$ 750.00	014-1585
E-MAIL	100.0	500.0	8.5	3.0	494.2	230.00	≤ 1	20 - 10	\$ 750.00	014-1590
sales@optosigma.com	100.0	600.0	7.6	3.0	594.8	276.00	≤ 1	20 - 10	\$ 750.00	014-1595
WEB	100.0	700.0	6.9	3.0	695.3	322.00	≤ 1	20 - 10	\$ 750.00	014-1600
www.optosigma.com	100.0	800.0	6.4	3.0	795.6	368.00	≤ 1	20 - 10	\$ 650.00	014-1605
	100.0	1000.0	5.7	3.0	995.1	460.00	≤ 1	20 - 10	\$ 650.00	014-1610

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## Fused Silica Biconvex Lenses

- Symmetrically convex positive lenses
- Focal lengths from 10 to 300mm
- Diameters from 5 to 50.8mm
- Complete range of optional Anti-Reflection coatings available



Symmetrical biconvex lenses are most useful when dealing with finite conjugate points. This makes them ideal for 1:1 imaging applications or for use in multi-element systems.

## Specifications & Tolerances

Focal length:  $\pm 1\%$  (Diameter  $\geq 10\text{mm}$ )  
 $\pm 2\%$  (Diameter  $< 10\text{mm}$ )

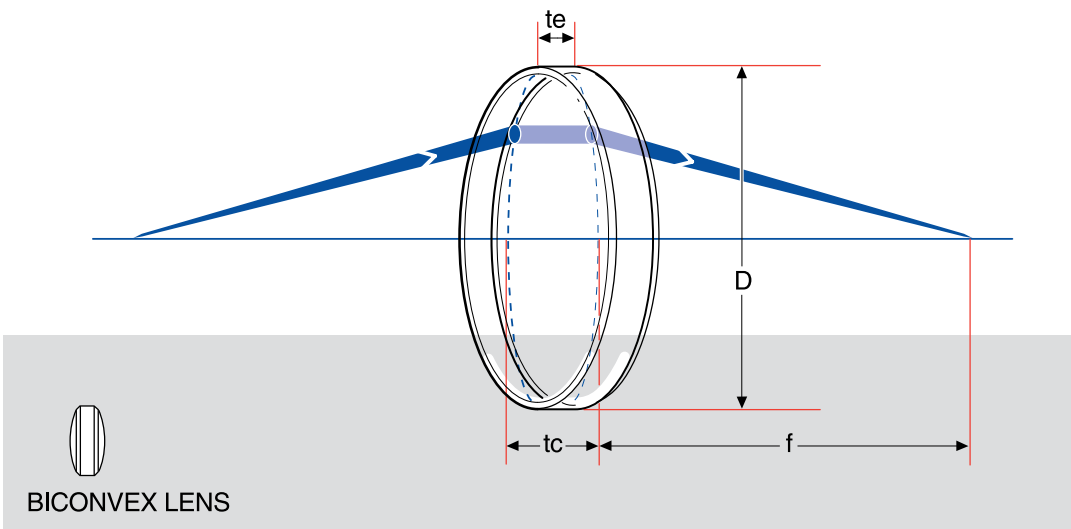
Thickness:  $\pm 0.15\text{mm}$

Material: Synthetic fused silica

Diameter:  $+0, -0.1\text{mm}$

Clear aperture:  $>90\%$

Coating: Optional (see pages 18 and 19)



## Fused Silica Biconvex Lenses

D (mm)	f (mm)	tc (mm)	te (mm)	fb (mm)	r (mm)	Centration (arcmin)	Surface Quality	Price	PART NUMBER
5.0	6.5	2.8	1.6	5.5	5.52	$\leq 3$	40 - 20	\$ 110.00	014-2100
5.0	8.4	2.3	1.4	7.6	7.36	$\leq 3$	40 - 20	\$ 110.00	014-2102
5.0	10.4	2.0	1.3	9.6	9.20	$\leq 3$	40 - 20	\$ 110.00	014-2104
5.0	12.3	1.8	1.3	11.7	11.04	$\leq 3$	40 - 20	\$ 110.00	014-2106
5.0	15.3	1.7	1.2	14.7	13.80	$\leq 3$	40 - 20	\$ 110.00	014-2108
5.0	20.3	1.5	1.2	19.7	18.40	$\leq 3$	40 - 20	\$ 110.00	014-2110
5.0	25.2	1.4	1.1	24.8	23.00	$\leq 3$	40 - 20	\$ 110.00	014-2112
5.0	30.2	1.3	1.1	29.8	27.60	$\leq 3$	40 - 20	\$ 110.00	014-2114
6.0	6.5	2.8	1.0	5.5	5.52	$\leq 3$	40 - 20	\$ 110.00	014-2120
6.0	8.4	2.3	1.0	7.6	7.36	$\leq 3$	40 - 20	\$ 110.00	014-2122

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## Fused Silica Biconvex Lenses (continued)

## Spherical Lenses

## Cylindrical Lenses

## Lens Kits

## Achromatic Doublets

## Multi-Element

## Micro Optics

## Mirrors

## Prisms

## Substrates &amp; Windows

## Beamsplitters

## Polarizers

## Filter &amp; Apertures

	D (mm)	f (mm)	tc (mm)	te (mm)	fb (mm)	r (mm)	Centration (arcmin)	Surface Quality	Price	PART NUMBER
	6.0	10.4	2.0	1.0	9.6	9.20	≤ 3	40 - 20	\$ 110.00	014-2124
	6.0	12.3	1.8	1.0	11.7	11.04	≤ 3	40 - 20	\$ 110.00	014-2126
	6.0	15.3	1.7	1.0	14.7	13.80	≤ 3	40 - 20	\$ 110.00	014-2128
	6.0	20.3	1.5	1.0	19.7	18.40	≤ 3	40 - 20	\$ 110.00	014-2130
	6.0	25.2	1.4	1.0	24.8	23.00	≤ 3	40 - 20	\$ 110.00	014-2132
	6.0	30.2	1.3	1.0	29.8	27.60	≤ 3	40 - 20	\$ 110.00	014-2134
	7.0	8.7	3.9	2.1	7.3	7.36	≤ 3	40 - 20	\$ 100.00	014-2140
	7.0	10.6	3.3	1.9	9.4	9.20	≤ 3	40 - 20	\$ 100.00	014-2142
	7.0	12.5	3.0	1.9	11.5	11.04	≤ 3	40 - 20	\$ 100.00	014-2144
	7.0	15.5	2.7	1.8	14.5	13.80	≤ 3	40 - 20	\$ 100.00	014-2146
	7.0	20.4	2.4	1.7	19.6	18.40	≤ 3	40 - 20	\$ 100.00	014-2148
	7.0	25.4	2.2	1.7	24.6	23.00	≤ 3	40 - 20	\$ 100.00	014-2150
	7.0	30.4	2.1	1.6	29.6	27.60	≤ 3	40 - 20	\$ 100.00	014-2152
	7.0	40.3	1.9	1.6	39.7	36.80	≤ 3	40 - 20	\$ 100.00	014-2154
	7.0	50.3	1.8	1.6	49.7	46.00	≤ 3	40 - 20	\$ 100.00	014-2156
	8.0	8.7	3.9	1.5	7.3	7.36	≤ 3	40 - 20	\$ 100.00	014-2170
	8.0	10.6	3.3	1.5	9.4	9.20	≤ 3	40 - 20	\$ 100.00	014-2172
	8.0	12.5	3.0	1.5	11.5	11.04	≤ 3	40 - 20	\$ 100.00	014-2174
	8.0	15.5	2.7	1.5	14.5	13.80	≤ 3	40 - 20	\$ 100.00	014-2176
	8.0	20.4	2.4	1.5	19.6	18.40	≤ 3	40 - 20	\$ 100.00	014-2178
	8.0	25.4	2.2	1.5	24.6	23.00	≤ 3	40 - 20	\$ 100.00	014-2180
	8.0	30.4	2.1	1.5	29.6	27.60	≤ 3	40 - 20	\$ 100.00	014-2182
	8.0	40.3	1.9	1.5	39.7	36.80	≤ 3	40 - 20	\$ 110.00	014-2184
	8.0	50.3	1.8	1.5	49.7	46.00	≤ 3	40 - 20	\$ 110.00	014-2186
	10.0	10.9	5.0	2.0	9.1	9.20	≤ 1	20 - 10	\$ 84.00	014-2260
	10.0	15.7	3.9	2.0	14.3	13.80	≤ 1	20 - 10	\$ 84.00	014-2270
	10.0	20.6	3.4	2.0	19.4	18.40	≤ 1	20 - 10	\$ 84.00	014-2280
	10.0	25.5	3.1	2.0	24.5	23.00	≤ 1	20 - 10	\$ 84.00	014-2290
	10.0	30.5	2.9	2.0	29.5	27.60	≤ 1	20 - 10	\$ 84.00	014-2310
	10.0	40.5	2.7	2.0	39.5	36.80	≤ 1	20 - 10	\$ 82.00	014-2315
	10.0	50.4	2.5	2.0	49.6	46.00	≤ 1	20 - 10	\$ 82.00	014-2320
	10.0	60.4	2.5	2.0	59.6	55.20	≤ 1	20 - 10	\$ 82.00	014-2325
	10.0	70.4	2.4	2.0	69.6	64.40	≤ 1	20 - 10	\$ 82.00	014-2330
	10.0	80.4	2.3	2.0	79.6	73.60	≤ 1	20 - 10	\$ 82.00	014-2335
	10.0	90.4	2.3	2.0	89.6	82.80	≤ 1	20 - 10	\$ 82.00	014-2340
	10.0	100.4	2.3	2.0	99.6	92.00	≤ 1	20 - 10	\$ 82.00	014-2345
	15.0	16.2	6.4	2.0	13.8	13.80	≤ 1	20 - 10	\$ 93.00	014-2380
	15.0	20.9	5.2	2.0	19.1	18.40	≤ 1	20 - 10	\$ 93.00	014-2440
	15.0	25.8	4.5	2.0	24.2	23.00	≤ 1	20 - 10	\$ 93.00	014-2445
	15.0	30.7	4.1	2.0	29.3	27.60	≤ 1	20 - 10	\$ 89.00	014-2446
	15.0	40.6	3.5	2.0	39.4	36.80	≤ 1	20 - 10	\$ 89.00	014-2447
	15.0	50.6	3.2	2.0	49.4	46.00	≤ 1	20 - 10	\$ 89.00	014-2448
	15.0	60.5	3.0	2.0	59.5	55.20	≤ 1	20 - 10	\$ 89.00	014-2382
	15.0	70.5	2.9	2.0	69.5	64.40	≤ 1	20 - 10	\$ 89.00	014-2384
	15.0	80.5	2.8	2.0	79.5	73.60	≤ 1	20 - 10	\$ 89.00	014-2386
	15.0	90.5	2.7	2.0	89.5	82.80	≤ 1	20 - 10	\$ 89.00	014-2388
	15.0	100.5	2.6	2.0	99.6	92.00	≤ 1	20 - 10	\$ 89.00	014-2390
	20.0	21.5	7.9	2.0	18.5	18.40	≤ 1	20 - 10	\$ 94.00	014-2450
	20.0	26.2	6.6	2.0	23.8	23.00	≤ 1	20 - 10	\$ 94.00	014-2460
	20.0	31.0	5.8	2.0	29.0	27.60	≤ 1	20 - 10	\$ 94.00	014-2470
	20.0	40.8	4.8	2.0	39.2	36.80	≤ 1	20 - 10	\$ 94.00	014-2480
	20.0	50.7	4.2	2.0	49.3	46.00	≤ 1	20 - 10	\$ 94.00	014-2490
	20.0	60.7	3.8	2.0	59.3	55.20	≤ 1	20 - 10	\$ 94.00	014-2495
	20.0	70.6	3.6	2.0	69.4	64.40	≤ 1	20 - 10	\$ 94.00	014-2500

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## Fused Silica Biconvex Lenses (continued)

D (mm)	f (mm)	tc (mm)	te (mm)	fb (mm)	r (mm)	Centration (arcmin)	Surface Quality	Price	PART NUMBER
20.0	80.6	3.4	2.0	79.4	73.60	≤ 1	20 - 10	\$ 94.00	014-2505
20.0	90.6	3.2	2.0	89.4	82.80	≤ 1	20 - 10	\$ 94.00	014-2510
20.0	100.5	3.1	2.0	99.5	92.00	≤ 1	20 - 10	\$ 94.00	014-2515
20.0	120.5	2.9	2.0	119.5	110.40	≤ 1	20 - 10	\$ 94.00	014-2520
20.0	150.5	2.7	2.0	149.5	138.00	≤ 1	20 - 10	\$ 94.00	014-2525
25.0	26.7	9.4	2.0	23.3	23.00	≤ 1	20 - 10	\$ 96.00	014-2550
25.0	31.4	8.0	2.0	28.6	27.60	≤ 1	20 - 10	\$ 96.00	014-2552
25.0	36.3	7.1	2.0	33.7	32.20	≤ 1	20 - 10	\$ 96.00	014-2555
25.0	41.1	6.4	2.0	38.9	36.80	≤ 1	20 - 10	\$ 96.00	014-2557
25.0	51.0	5.5	2.0	49.0	46.00	≤ 1	20 - 10	\$ 96.00	014-2560
25.0	60.8	4.9	2.0	59.2	55.20	≤ 1	20 - 10	\$ 96.00	014-2564
25.0	70.8	4.5	2.0	69.2	64.40	≤ 1	20 - 10	\$ 96.00	014-2568
25.0	80.7	4.1	2.0	79.3	73.60	≤ 1	20 - 10	\$ 96.00	014-2570
25.0	90.7	3.9	2.0	89.3	82.80	≤ 1	20 - 10	\$ 96.00	014-2575
25.0	100.6	3.7	2.0	99.4	92.00	≤ 1	20 - 10	\$ 96.00	014-2580
25.0	120.6	3.4	2.0	119.4	110.40	≤ 1	20 - 10	\$ 96.00	014-2585
25.0	150.5	3.1	2.0	149.5	138.00	≤ 1	20 - 10	\$ 96.00	014-2590
25.0	170.5	3.0	2.0	169.5	156.40	≤ 1	20 - 10	\$ 96.00	014-2595
25.0	200.5	2.9	2.0	119.5	184.00	≤ 1	20 - 10	\$ 96.00	014-2660
25.4	26.7	9.4	1.8	23.3	23.00	≤ 1	20 - 10	\$ 96.00	014-2790
25.4	31.4	8.0	1.8	28.5	27.60	≤ 1	20 - 10	\$ 96.00	014-2810
25.4	36.3	7.1	1.9	33.8	32.20	≤ 1	20 - 10	\$ 96.00	014-2820
25.4	41.1	6.4	1.9	38.8	36.80	≤ 1	20 - 10	\$ 95.00	014-2830
25.4	51.0	5.5	1.9	49.1	46.00	≤ 1	20 - 10	\$ 95.00	014-2880
25.4	60.9	4.9	1.9	59.0	55.20	≤ 1	20 - 10	\$ 95.00	014-2885
25.4	70.8	4.4	1.9	69.1	64.40	≤ 1	20 - 10	\$ 95.00	014-2890
25.4	80.7	4.1	1.9	79.1	73.60	≤ 1	20 - 10	\$ 95.00	014-2895
25.4	90.7	3.9	1.9	89.2	82.80	≤ 1	20 - 10	\$ 95.00	014-2900
25.4	100.6	3.7	1.9	99.2	92.00	≤ 1	20 - 10	\$ 95.00	014-2905
25.4	150.5	3.1	1.9	149.3	138.00	≤ 1	20 - 10	\$ 95.00	014-2915
25.4	200.5	2.9	2.0	199.4	184.00	≤ 1	20 - 10	\$ 95.00	014-2925
30.0	32.0	10.9	2.0	28.0	27.60	≤ 1	20 - 10	\$ 100.00	014-3390
30.0	36.7	9.4	2.0	33.3	32.20	≤ 1	20 - 10	\$ 100.00	014-3440
30.0	41.5	8.4	2.0	38.5	36.80	≤ 1	20 - 10	\$ 100.00	014-3445
30.0	51.2	7.0	2.0	48.8	46.00	≤ 1	20 - 10	\$ 100.00	014-3450
30.0	61.1	6.2	2.0	58.9	55.20	≤ 1	20 - 10	\$ 100.00	014-3452
30.0	71.0	5.5	2.0	69.0	64.40	≤ 1	20 - 10	\$ 100.00	014-3455
30.0	80.9	5.1	2.0	79.1	73.60	≤ 1	20 - 10	\$ 100.00	014-3457
30.0	90.8	4.7	2.0	89.2	82.80	≤ 1	20 - 10	\$ 100.00	014-3458
30.0	100.8	4.5	2.0	99.2	92.00	≤ 1	20 - 10	\$ 100.00	014-3460
30.0	120.7	4.0	2.0	119.3	110.40	≤ 1	20 - 10	\$ 100.00	014-3465
30.0	150.6	3.6	2.0	149.4	138.00	≤ 1	20 - 10	\$ 100.00	014-3470
30.0	170.6	3.4	2.0	169.4	156.40	≤ 1	20 - 10	\$ 100.00	014-3475
30.0	200.6	3.2	2.0	199.4	184.00	≤ 1	20 - 10	\$ 100.00	014-3480
30.0	220.5	3.1	2.0	219.5	202.40	≤ 1	20 - 10	\$ 100.00	014-3477
30.0	250.5	3.0	2.0	249.5	230.00	≤ 1	20 - 10	\$ 100.00	014-3478
40.0	42.5	13.8	2.0	37.5	36.80	≤ 1	20 - 10	\$ 116.00	014-3482
40.0	52.0	11.2	2.0	48.0	46.00	≤ 1	20 - 10	\$ 116.00	014-3483
40.0	61.7	9.5	2.0	58.3	55.20	≤ 1	20 - 10	\$ 116.00	014-3484
40.0	71.5	8.4	2.0	68.5	64.40	≤ 1	20 - 10	\$ 116.00	014-3485
40.0	81.3	7.5	2.0	78.7	73.60	≤ 1	20 - 10	\$ 116.00	014-3486
40.0	91.2	6.9	2.0	88.8	82.80	≤ 1	20 - 10	\$ 116.00	014-3905
40.0	101.1	6.4	2.0	98.9	92.00	≤ 1	20 - 10	\$ 116.00	014-3487
40.0	121.0	5.7	2.0	119.0	110.40	≤ 1	20 - 10	\$ 116.00	014-3910

Spherical Lenses

Cylindrical Lenses

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## Fused Silica Biconvex Lenses (continued)

	D (mm)	f (mm)	tc (mm)	te (mm)	fb (mm)	r (mm)	Centration (arcmin)	Surface Quality	Price	PART NUMBER
	40.0	150.8	4.9	2.0	149.2	138.00	≤ 1	20 - 10	\$ 116.00	014-3912
	40.0	170.8	4.6	2.0	169.2	156.40	≤ 1	20 - 10	\$ 116.00	014-3914
	40.0	200.7	4.2	2.0	199.3	184.00	≤ 1	20 - 10	\$ 116.00	014-3916
	40.0	220.7	4.0	2.0	219.3	202.40	≤ 1	20 - 10	\$ 116.00	014-3918
	40.0	250.6	3.7	2.0	249.4	230.00	≤ 1	20 - 10	\$ 116.00	014-3920
	50.0	53.2	17.8	3.0	46.8	46.00	≤ 1	20 - 10	\$ 226.00	014-3490
	50.0	62.7	15.0	3.0	57.3	55.20	≤ 1	20 - 10	\$ 226.00	014-3510
	50.0	72.3	13.1	3.0	67.7	64.40	≤ 1	20 - 10	\$ 226.00	014-3520
	50.0	82.1	11.8	3.0	77.9	73.60	≤ 1	20 - 10	\$ 216.00	014-3550
	50.0	91.9	10.7	3.0	88.1	82.80	≤ 1	20 - 10	\$ 210.00	014-3555
	50.0	101.7	9.9	3.0	98.3	92.00	≤ 1	20 - 10	\$ 205.00	014-3560
	50.0	121.5	8.7	3.0	118.5	110.40	≤ 1	20 - 10	\$ 184.00	014-3565
	50.0	151.3	7.6	3.0	148.7	138.00	≤ 1	20 - 10	\$ 158.00	014-3570
	50.0	201.1	6.4	3.0	198.9	184.00	≤ 1	20 - 10	\$ 158.00	014-3580
	50.0	221.0	6.1	3.0	219.0	202.40	≤ 1	20 - 10	\$ 158.00	014-3585
	50.0	251.0	5.7	3.0	249.0	230.00	≤ 1	20 - 10	\$ 158.00	014-3590
	50.0	300.9	5.3	3.0	299.1	276.00	≤ 1	20 - 10	\$ 158.00	014-3660
	50.8	53.2	17.8	2.5	46.7	46.00	≤ 1	20 - 10	\$ 216.00	014-3690
	50.8	62.7	15.0	2.6	57.3	55.20	≤ 1	20 - 10	\$ 216.00	014-3710
	50.8	72.3	13.1	2.7	67.7	64.40	≤ 1	20 - 10	\$ 216.00	014-3720
	50.8	82.1	11.8	2.8	78.0	73.60	≤ 1	20 - 10	\$ 216.00	014-3730
	50.8	91.9	10.7	2.7	87.7	82.80	≤ 1	20 - 10	\$ 205.00	014-3735
	50.8	101.7	9.9	2.7	98.3	92.00	≤ 1	20 - 10	\$ 195.00	014-3780
	50.8	121.5	8.7	2.8	118.5	110.40	≤ 1	20 - 10	\$ 195.00	014-3790
	50.8	151.3	7.6	2.9	148.7	138.00	≤ 1	20 - 10	\$ 195.00	014-3810
	50.8	201.1	6.4	2.9	198.9	184.00	≤ 1	20 - 10	\$ 174.00	014-3820
	50.8	251.0	5.8	3.0	249.0	230.00	≤ 1	20 - 10	\$ 174.00	014-3830
	50.8	300.9	5.3	3.0	298.8	276.00	≤ 1	20 - 10	\$ 174.00	014-3835



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## Fused Silica Plano Concave Lenses

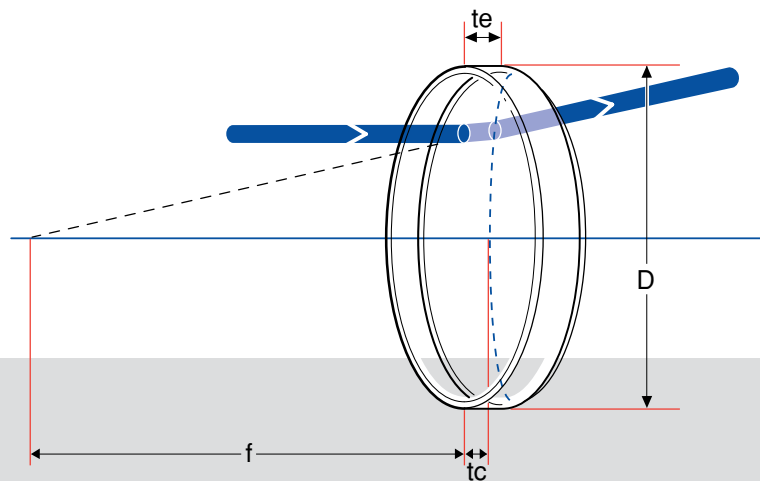
- Simple negative lenses for general use
- Focal lengths from -15 to -300mm
- Diameters from 10 to 50.8mm
- Complete range of optional Anti-Reflection coatings available



These simple negative lenses have many uses. Alone they form a virtual image of a distant object or collimated light source. Used in combination with other optics they reduce the power of the system. Sharp edges, which are common in negative lenses, are removed by beveling in order to reduce the likelihood of chipping. These Ultra-Violet grade synthetic fused silica lenses are provided uncoated, however a wide range of standard Anti-Reflection coatings is available for these lenses as described on pages 18 and 19.

### Specifications & Tolerances

Focal length: $\pm 1\%$	Diameter: $+0, -0.1\text{mm}$
Thickness: $\pm 0.15\text{mm}$	Centration: $\leq 1\text{arcmin}$
Surface quality: 20-10	Clear aperture: $> 90\%$
Material: Synthetic fused silica,	Coating: Optional (see page 18 and 19)



PLANO CONCAVE LENS

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Multi-Element

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*If you need a simple lens quickly, let us know. With our next-day delivery option your system will be up and running that much sooner. And if you don't see exactly the lens that you need give us a call. We have a wide range of special focal lengths, diameters, and coatings available.*

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## Fused Silica Plano Concave Lenses

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Achromatic Doublets

Multi-Element

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Mirrors

Prisms

Substrates &amp; Windows

Beamsplitters

Polarizers

Filter &amp; Apertures

D (mm)	f (mm)	te (mm)	tc (mm)	fb (mm)	r (mm)	Centration (arcmin)	Surface Quality	Price	PART NUMBER
10.0	-15.0	4.1	2.0	-16.4	6.90	≤ 1	20 - 10	\$ 79.00	012-0050
10.0	-20.0	3.5	2.0	-21.4	9.20	≤ 1	20 - 10	\$ 79.00	012-0060
10.0	-25.0	3.1	2.0	-26.4	11.50	≤ 1	20 - 10	\$ 79.00	012-0070
10.0	-30.0	2.9	2.0	-31.4	13.80	≤ 1	20 - 10	\$ 72.00	012-0080
10.0	-40.0	2.7	2.0	-41.4	18.40	≤ 1	20 - 10	\$ 72.00	012-0081
10.0	-50.0	2.6	2.0	-51.4	23.00	≤ 1	20 - 10	\$ 72.00	012-0082
10.0	-60.0	2.5	2.0	-61.4	27.60	≤ 1	20 - 10	\$ 72.00	012-0720
10.0	-70.0	2.4	2.0	-71.4	32.20	≤ 1	20 - 10	\$ 72.00	012-0722
10.0	-80.0	2.3	2.0	-81.4	36.80	≤ 1	20 - 10	\$ 72.00	012-0724
10.0	-90.0	2.3	2.0	-91.4	41.40	≤ 1	20 - 10	\$ 72.00	012-0726
10.0	-100.0	2.3	2.0	-101.4	46.00	≤ 1	20 - 10	\$ 72.00	012-0728
12.7	-20.0	4.5	2.0	-21.4	9.20	≤ 1	20 - 10	\$ 81.00	012-0083
12.7	-25.0	3.9	2.0	-26.4	11.50	≤ 1	20 - 10	\$ 81.00	012-0084
12.7	-30.0	3.5	2.0	-31.4	13.80	≤ 1	20 - 10	\$ 81.00	012-0085
12.7	-40.0	3.1	2.0	-41.4	18.40	≤ 1	20 - 10	\$ 77.00	012-0086
15.0	-20.0	5.9	2.0	-21.4	9.20	≤ 1	20 - 10	\$ 82.00	012-0087
15.0	-25.0	4.8	2.0	-26.4	11.50	≤ 1	20 - 10	\$ 82.00	012-0088
15.0	-30.0	4.2	2.0	-31.4	13.80	≤ 1	20 - 10	\$ 82.00	012-0089
15.0	-40.0	3.6	2.0	-41.4	18.40	≤ 1	20 - 10	\$ 82.00	012-0091
15.0	-50.0	3.3	2.0	-51.4	23.00	≤ 1	20 - 10	\$ 82.00	012-0092
15.0	-60.0	3.0	2.0	-61.4	27.60	≤ 1	20 - 10	\$ 82.00	012-0093
15.0	-70.0	2.9	2.0	-71.4	32.20	≤ 1	20 - 10	\$ 82.00	012-0094
15.0	-80.0	2.8	2.0	-81.4	36.80	≤ 1	20 - 10	\$ 82.00	012-0095
15.0	-90.0	2.7	2.0	-91.4	41.40	≤ 1	20 - 10	\$ 82.00	012-0096
15.0	-100.0	2.6	2.0	-101.4	46.00	≤ 1	20 - 10	\$ 82.00	012-0097
20.0	-25.0	7.8	2.0	-26.4	11.50	≤ 1	20 - 10	\$ 84.00	012-0090
20.0	-30.0	6.3	2.0	-31.4	13.80	≤ 1	20 - 10	\$ 84.00	012-0110
20.0	-40.0	5.0	2.0	-41.4	18.40	≤ 1	20 - 10	\$ 84.00	012-0120
20.0	-50.0	4.3	2.0	-51.4	23.00	≤ 1	20 - 10	\$ 82.00	012-0130
20.0	-60.0	3.9	2.0	-61.4	27.60	≤ 1	20 - 10	\$ 82.00	012-0740
20.0	-70.0	3.6	2.0	-71.4	32.20	≤ 1	20 - 10	\$ 82.00	012-0742
20.0	-80.0	3.4	2.0	-81.4	36.80	≤ 1	20 - 10	\$ 82.00	012-0744
20.0	-90.0	3.2	2.0	-91.4	41.40	≤ 1	20 - 10	\$ 82.00	012-0746
20.0	-100.0	3.1	2.0	-101.4	46.00	≤ 1	20 - 10	\$ 82.00	012-0748
20.0	-120.0	2.9	2.0	-121.4	55.20	≤ 1	20 - 10	\$ 82.00	012-0750
20.0	-150.0	2.7	2.0	-151.4	69.00	≤ 1	20 - 10	\$ 82.00	012-0752
25.0	-30.0	10.0	2.0	-31.4	13.80	≤ 1	20 - 10	\$ 86.00	012-0132
25.0	-35.0	8.0	2.0	-36.4	16.10	≤ 1	20 - 10	\$ 86.00	012-0133
25.0	-40.0	6.9	2.0	-41.4	18.40	≤ 1	20 - 10	\$ 86.00	012-0134
25.0	-50.0	5.7	2.0	-51.4	23.00	≤ 1	20 - 10	\$ 86.00	012-0140
25.0	-60.0	5.0	2.0	-61.4	27.60	≤ 1	20 - 10	\$ 81.00	012-0142
25.0	-70.0	4.5	2.0	-71.4	32.20	≤ 1	20 - 10	\$ 81.00	012-0145
25.0	-80.0	4.2	2.0	-81.4	36.80	≤ 1	20 - 10	\$ 81.00	012-0150
25.0	-90.0	3.9	2.0	-91.4	41.40	≤ 1	20 - 10	\$ 81.00	012-0155
25.0	-100.0	3.7	2.0	-101.4	46.00	≤ 1	20 - 10	\$ 81.00	012-0160
25.0	-120.0	3.4	2.0	-121.4	55.20	≤ 1	20 - 10	\$ 81.00	012-0165
25.0	-150.0	3.1	2.0	-151.4	69.00	≤ 1	20 - 10	\$ 81.00	012-0170
25.0	-170.0	3.0	2.0	-171.4	78.20	≤ 1	20 - 10	\$ 81.00	012-0175
25.0	-200.0	2.9	2.0	-201.4	92.00	≤ 1	20 - 10	\$ 81.00	012-0180
25.4	-30.0	10.4	2.0	-11.4	13.80	≤ 1	20 - 10	\$ 87.00	012-0222
25.4	-35.0	8.2	2.0	-36.4	16.10	≤ 1	20 - 10	\$ 87.00	012-0225
25.4	-40.0	7.1	2.0	-41.4	18.40	≤ 1	20 - 10	\$ 87.00	012-0227
25.4	-50.0	5.8	2.0	-51.4	23.00	≤ 1	20 - 10	\$ 87.00	012-0230
25.4	-60.0	5.1	2.0	-61.4	27.60	≤ 1	20 - 10	\$ 82.00	012-0232
25.4	-70.0	4.6	2.0	-71.4	32.20	≤ 1	20 - 10	\$ 82.00	012-0235

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## Fused Silica Plano Concave Lenses (continued)

D (mm)	f (mm)	te (mm)	tc (mm)	fb (mm)	r (mm)	Centration (arcmin)	Surface Quality	Price	PART NUMBER
25.4	-80.0	4.3	2.0	-81.4	36.80	≤ 1	20 - 10	\$ 82.00	012-0240
25.4	-90.0	4.0	2.0	-91.4	41.40	≤ 1	20 - 10	\$ 82.00	012-0245
25.4	-100.0	3.8	2.0	-101.4	46.00	≤ 1	20 - 10	\$ 82.00	012-0250
25.4	-150.0	3.2	2.0	-151.4	69.00	≤ 1	20 - 10	\$ 82.00	012-0252
25.4	-200.0	2.9	2.0	-201.4	92.00	≤ 1	20 - 10	\$ 82.00	012-0254
30.0	-35.0	12.3	2.0	-36.4	16.10	≤ 1	20 - 10	\$ 95.00	012-0260
30.0	-40.0	9.7	2.0	-41.4	18.40	≤ 1	20 - 10	\$ 95.00	012-0330
30.0	-50.0	7.6	2.0	-51.4	23.00	≤ 1	20 - 10	\$ 95.00	012-0340
30.0	-60.0	6.4	2.0	-61.4	27.60	≤ 1	20 - 10	\$ 90.00	012-0342
30.0	-70.0	5.7	2.0	-71.4	32.20	≤ 1	20 - 10	\$ 90.00	012-0345
30.0	-80.0	5.2	2.0	-81.4	36.80	≤ 1	20 - 10	\$ 90.00	012-0350
30.0	-90.0	4.8	2.0	-91.4	41.40	≤ 1	20 - 10	\$ 90.00	012-0355
30.0	-100.0	4.5	2.0	-101.4	46.00	≤ 1	20 - 10	\$ 90.00	012-0360
30.0	-120.0	4.1	2.0	-121.4	55.20	≤ 1	20 - 10	\$ 90.00	012-0365
30.0	-150.0	3.7	2.0	-151.4	69.00	≤ 1	20 - 10	\$ 90.00	012-0370
30.0	-170.0	3.5	2.0	-171.4	78.20	≤ 1	20 - 10	\$ 90.00	012-0375
30.0	-200.0	3.2	2.0	-201.4	92.00	≤ 1	20 - 10	\$ 90.00	012-0380
30.0	-220.0	3.1	2.0	-221.4	101.20	≤ 1	20 - 10	\$ 90.00	012-0385
30.0	-250.0	3.0	2.0	-251.4	115.00	≤ 1	20 - 10	\$ 90.00	012-0390
40.0	-50.0	13.6	2.0	-51.4	23.00	≤ 1	20 - 10	\$ 142.00	012-0410
40.0	-60.0	10.6	2.0	-61.4	27.60	≤ 1	20 - 10	\$ 142.00	012-0412
40.0	-70.0	9.0	2.0	-71.4	32.20	≤ 1	20 - 10	\$ 142.00	012-0414
40.0	-80.0	7.9	2.0	-81.4	36.80	≤ 1	20 - 10	\$ 128.00	012-0416
40.0	-90.0	7.2	2.0	-91.4	41.40	≤ 1	20 - 10	\$ 128.00	012-0418
40.0	-100.0	6.6	2.0	-101.4	46.00	≤ 1	20 - 10	\$ 128.00	012-0420
40.0	-120.0	5.8	2.0	-121.4	55.20	≤ 1	20 - 10	\$ 128.00	012-0422
40.0	-150.0	5.0	2.0	-151.4	69.00	≤ 1	20 - 10	\$ 114.00	012-0424
40.0	-170.0	4.6	2.0	-171.4	78.20	≤ 1	20 - 10	\$ 114.00	012-0426
40.0	-200.0	4.2	2.0	-201.4	92.00	≤ 1	20 - 10	\$ 114.00	012-0428
40.0	-220.0	4.0	2.0	-221.4	101.20	≤ 1	20 - 10	\$ 114.00	012-0429
40.0	-250.0	3.8	2.0	-251.4	115.00	≤ 1	20 - 10	\$ 114.00	012-0430
50.0	-70.0	14.9	3.0	-72.1	32.20	≤ 1	20 - 10	\$ 205.00	012-0440
50.0	-80.0	12.8	3.0	-82.1	36.80	≤ 1	20 - 10	\$ 205.00	012-0445
50.0	-90.0	11.4	3.0	-92.1	41.40	≤ 1	20 - 10	\$ 194.00	012-0447
50.0	-100.0	10.4	3.0	-102.1	46.00	≤ 1	20 - 10	\$ 184.00	012-0450
50.0	-120.0	9.0	3.0	-122.1	55.20	≤ 1	20 - 10	\$ 184.00	012-0455
50.0	-150.0	7.7	3.0	-152.1	69.00	≤ 1	20 - 10	\$ 184.00	012-0460
50.0	-170.0	7.1	3.0	-172.1	78.20	≤ 1	20 - 10	\$ 184.00	012-0465
50.0	-200.0	6.5	3.0	-202.1	92.00	≤ 1	20 - 10	\$ 158.00	012-0470
50.0	-220.0	6.1	3.0	-222.1	101.20	≤ 1	20 - 10	\$ 158.00	012-0472
50.0	-250.0	5.8	3.0	-252.1	115.00	≤ 1	20 - 10	\$ 158.00	012-0475
50.0	-300.0	5.3	3.0	-302.1	138.00	≤ 1	20 - 10	\$ 158.00	012-0480
50.8	-70.0	15.4	3.0	-72.1	32.20	≤ 1	20 - 10	\$ 208.00	012-0540
50.8	-80.0	13.2	3.0	-82.1	36.80	≤ 1	20 - 10	\$ 208.00	012-0550
50.8	-90.0	11.7	3.0	-92.1	41.40	≤ 1	20 - 10	\$ 194.00	012-0555
50.8	-100.0	10.6	3.0	-102.1	46.00	≤ 1	20 - 10	\$ 188.00	012-0560
50.8	-150.0	7.8	3.0	-152.1	69.00	≤ 1	20 - 10	\$ 188.00	012-0570
50.8	-200.0	6.6	3.0	-202.1	92.00	≤ 1	20 - 10	\$ 168.00	012-0580
50.8	-250.0	5.8	3.0	-252.1	115.00	≤ 1	20 - 10	\$ 168.00	012-0585
50.8	-300.0	5.4	3.0	-302.1	138.00	≤ 1	20 - 10	\$ 168.00	012-0590

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## Fused Silica Biconcave Lenses

- Symmetrically concave negative lenses
- Ultra-Violet grade fused silica
- Focal lengths from -9.7 to -299.5mm
- Diameters from 10 to 50.8mm
- Complete range of optional Anti-Reflection coatings available



These biconcave lenses are used when a very high negative power is required. They can be used in a multi-element system or alone to produce a diverging cone or a virtual image.

Sharp edges, which are common in negative lenses, are removed by beveling to reduce the likelihood of chipping.

These lenses are provided uncoated, however a wide range of standard Anti-Reflection coatings are available for these lenses. These coatings are described on pages 18 and 19.

### Specifications & Tolerances

Focal length:  $\pm 1\%$   
 Diameter: +0, -0.1mm  
 Thickness:  $\pm 0.15\text{mm}$   
 Centration:  $\leq 1\text{arcmin}$   
 Surface quality: 20-10  
 Clear aperture:  $> 85\%$   
 Material: Synthetic fused silica  
 Coating: Optional (see pages 18 and 19)

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## Fused Silica Biconcave Lenses

D (mm)	f (mm)	te (mm)	tc (mm)	fb (mm)	r (mm)	Centration (arcmin)	Surface Quality	Price	PART NUMBER
10.0	-9.7	5.0	2.0	-10.3	9.20	≤ 1	20 - 10	\$ 79.00	<b>018-0040</b>
10.0	-14.7	3.9	2.0	-15.3	13.80	≤ 1	20 - 10	\$ 79.00	<b>018-0045</b>
10.0	-19.7	3.4	2.0	-20.3	18.40	≤ 1	20 - 10	\$ 79.00	<b>018-0050</b>
10.0	-24.7	3.1	2.0	-25.3	23.00	≤ 1	20 - 10	\$ 79.00	<b>018-0060</b>
10.0	-29.7	2.9	2.0	-30.3	27.60	≤ 1	20 - 10	\$ 79.00	<b>018-0070</b>
10.0	-39.7	2.7	2.0	-40.3	36.80	≤ 1	20 - 10	\$ 79.00	<b>018-0072</b>
10.0	-49.7	2.5	2.0	-50.3	46.00	≤ 1	20 - 10	\$ 79.00	<b>018-0075</b>
15.0	-14.7	6.4	2.0	-15.3	13.80	≤ 1	20 - 10	\$ 82.00	<b>018-0710</b>
15.0	-19.7	5.2	2.0	-20.3	18.40	≤ 1	20 - 10	\$ 82.00	<b>018-0715</b>
15.0	-24.7	4.5	2.0	-25.3	23.00	≤ 1	20 - 10	\$ 82.00	<b>018-0720</b>
15.0	-29.7	4.1	2.0	-30.3	27.60	≤ 1	20 - 10	\$ 82.00	<b>018-0725</b>
15.0	-39.7	3.5	2.0	-40.3	36.80	≤ 1	20 - 10	\$ 82.00	<b>018-0730</b>
15.0	-49.7	3.2	2.0	-50.3	46.00	≤ 1	20 - 10	\$ 82.00	<b>018-0735</b>
20.0	-19.7	7.9	2.0	-20.3	18.40	≤ 1	20 - 10	\$ 84.00	<b>018-0080</b>
20.0	-24.7	6.6	2.0	-25.3	23.00	≤ 1	20 - 10	\$ 84.00	<b>018-0090</b>
20.0	-29.7	5.8	2.0	-30.3	27.60	≤ 1	20 - 10	\$ 84.00	<b>018-0110</b>
20.0	-39.7	4.8	2.0	-40.3	36.80	≤ 1	20 - 10	\$ 84.00	<b>018-0120</b>
20.0	-49.7	4.2	2.0	-50.3	46.00	≤ 1	20 - 10	\$ 84.00	<b>018-0122</b>
25.0	-24.7	9.4	2.0	-25.3	23.00	≤ 1	20 - 10	\$ 87.00	<b>018-0125</b>
25.0	-29.7	8.0	2.0	-30.3	27.60	≤ 1	20 - 10	\$ 81.00	<b>018-0126</b>
25.0	-34.7	7.1	2.0	-35.3	32.20	≤ 1	20 - 10	\$ 81.00	<b>018-0128</b>
25.0	-39.7	6.4	2.0	-40.3	36.80	≤ 1	20 - 10	\$ 81.00	<b>018-0130</b>
25.0	-49.7	5.5	2.0	-50.3	46.00	≤ 1	20 - 10	\$ 81.00	<b>018-0140</b>
25.0	-59.7	4.9	2.0	-60.3	55.20	≤ 1	20 - 10	\$ 81.00	<b>018-0142</b>
25.0	-69.7	4.5	2.0	-70.3	64.40	≤ 1	20 - 10	\$ 81.00	<b>018-0145</b>
25.0	-79.7	4.1	2.0	-80.3	73.60	≤ 1	20 - 10	\$ 74.00	<b>018-0155</b>
25.0	-89.7	3.9	2.0	-90.3	82.80	≤ 1	20 - 10	\$ 74.00	<b>018-0157</b>
25.0	-99.7	3.7	2.0	-100.3	92.00	≤ 1	20 - 10	\$ 74.00	<b>018-0160</b>
25.4	-24.7	9.6	2.0	-25.4	23.00	≤ 1	20 - 10	\$ 87.00	<b>018-0245</b>
25.4	-29.7	8.2	2.0	-30.4	27.60	≤ 1	20 - 10	\$ 87.00	<b>018-0250</b>
25.4	-39.7	6.5	2.0	-40.4	36.80	≤ 1	20 - 10	\$ 87.00	<b>018-0258</b>
25.4	-49.7	5.6	2.0	-50.4	46.00	≤ 1	20 - 10	\$ 87.00	<b>018-0260</b>
25.4	-59.7	5.0	2.0	-60.4	55.20	≤ 1	20 - 10	\$ 87.00	<b>018-0270</b>
25.4	-69.7	4.5	2.0	-70.4	64.40	≤ 1	20 - 10	\$ 87.00	<b>018-0275</b>
25.4	-79.7	4.2	2.0	-80.4	73.60	≤ 1	20 - 10	\$ 87.00	<b>018-0280</b>
25.4	-89.7	4.0	2.0	-90.4	82.80	≤ 1	20 - 10	\$ 87.00	<b>018-0285</b>
25.4	-99.7	3.8	2.0	-100.4	92.00	≤ 1	20 - 10	\$ 87.00	<b>018-0290</b>
25.4	-149.7	3.2	2.0	-150.4	138.00	≤ 1	20 - 10	\$ 87.00	<b>018-0300</b>
25.4	-199.7	2.9	2.0	-200.4	184.00	≤ 1	20 - 10	\$ 87.00	<b>018-0310</b>
30.0	-29.7	10.9	2.0	-30.3	27.60	≤ 1	20 - 10	\$ 95.00	<b>018-0375</b>
30.0	-34.7	9.4	2.0	-35.3	32.20	≤ 1	20 - 10	\$ 95.00	<b>018-0377</b>
30.0	-39.7	8.4	2.0	-40.3	36.80	≤ 1	20 - 10	\$ 95.00	<b>018-0378</b>
30.0	-49.7	7.0	2.0	-50.3	46.00	≤ 1	20 - 10	\$ 95.00	<b>018-0380</b>
30.0	-59.7	6.2	2.0	-60.3	55.20	≤ 1	20 - 10	\$ 95.00	<b>018-0382</b>
30.0	-69.7	5.5	2.0	-70.3	64.40	≤ 1	20 - 10	\$ 95.00	<b>018-0384</b>
30.0	-79.7	5.1	2.0	-80.3	73.60	≤ 1	20 - 10	\$ 90.00	<b>018-0386</b>
30.0	-89.7	4.7	2.0	-90.3	82.80	≤ 1	20 - 10	\$ 90.00	<b>018-0388</b>
30.0	-99.7	4.5	2.0	-100.3	92.00	≤ 1	20 - 10	\$ 90.00	<b>018-0390</b>
40.0	-39.7	13.8	2.0	-40.3	36.80	≤ 1	20 - 10	\$ 135.00	<b>018-0760</b>
40.0	-49.7	11.2	2.0	-50.3	46.00	≤ 1	20 - 10	\$ 135.00	<b>018-0765</b>
40.0	-59.7	9.5	2.0	-60.3	55.20	≤ 1	20 - 10	\$ 135.00	<b>018-0770</b>
40.0	-69.7	8.4	2.0	-70.3	64.40	≤ 1	20 - 10	\$ 135.00	<b>018-0775</b>
40.0	-79.7	7.5	2.0	-80.3	73.60	≤ 1	20 - 10	\$ 135.00	<b>018-0780</b>
40.0	-89.7	6.9	2.0	-90.3	82.80	≤ 1	20 - 10	\$ 135.00	<b>018-0785</b>
40.0	-99.7	6.4	2.0	-100.3	92.00	≤ 1	20 - 10	\$ 135.00	<b>018-0790</b>

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D (mm)	f (mm)	te (mm)	tc (mm)	fb (mm)	r (mm)	Centration (arcmin)	Surface Quality	Price	PART NUMBER
50.0	-49.5	17.8	3.0	-50.5	46.00	≤ 1	20 - 10	\$ 210.00	<b>018-0465</b>
50.0	-59.5	15.0	3.0	-60.5	55.20	≤ 1	20 - 10	\$ 210.00	<b>018-0466</b>
50.0	-69.5	13.1	3.0	-70.5	64.40	≤ 1	20 - 10	\$ 210.00	<b>018-0467</b>
50.0	-79.5	11.8	3.0	-80.5	73.60	≤ 1	20 - 10	\$ 210.00	<b>018-0468</b>
50.0	-89.5	10.7	3.0	-90.5	82.80	≤ 1	20 - 10	\$ 210.00	<b>018-0468</b>
50.0	-99.5	9.9	3.0	-100.5	92.00	≤ 1	20 - 10	\$ 210.00	<b>018-0470</b>
50.8	-49.5	18.3	3.0	-50.5	46.00	≤ 1	20 - 10	\$ 210.00	<b>018-0665</b>
50.8	-59.5	15.4	3.0	-60.5	55.20	≤ 1	20 - 10	\$ 210.00	<b>018-0668</b>
50.8	-69.5	13.4	3.0	-70.5	64.40	≤ 1	20 - 10	\$ 210.00	<b>018-0670</b>
50.8	-79.5	12.0	3.0	-80.5	73.60	≤ 1	20 - 10	\$ 210.00	<b>018-0673</b>
50.8	-89.5	11.0	3.0	-90.5	82.80	≤ 1	20 - 10	\$ 210.00	<b>018-0675</b>
50.8	-99.5	10.2	3.0	-100.5	92.00	≤ 1	20 - 10	\$ 210.00	<b>018-0677</b>
50.8	-149.5	7.7	3.0	-150.5	138.00	≤ 1	20 - 10	\$ 210.00	<b>018-0683</b>
50.8	-199.5	6.5	3.0	-200.5	184.00	≤ 1	20 - 10	\$ 210.00	<b>018-0687</b>
50.8	-249.5	5.8	3.0	-250.5	230.00	≤ 1	20 - 10	\$ 210.00	<b>018-0690</b>
50.8	-299.5	5.3	3.0	-300.5	276.00	≤ 1	20 - 10	\$ 210.00	<b>018-0693</b>



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