

Lenses (UV FS, BK7, CaF₂)

PLANO-CONVEX LENSES

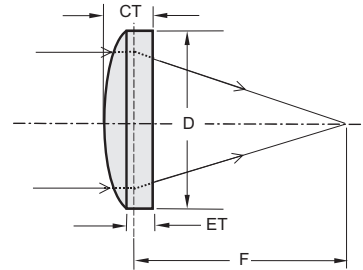
FEATURES

- › Positive focal length
- › Converge incident light
- › Form both real and virtual images
- › Very close to the form minimising spherical aberration for infinite conjugate applications

These simplest form lenses have flat surface on one side and spherical surface on the other. They are widely used in telescopes, microscopes, collimators, optical transceivers, magnifiers, condenser systems and eyepieces.

*Upon customer's request, lenses may be anti-reflection coated.
For a required coating, please refer to the **Coatings Section**.*

Standard lenses have a range of focal lengths – from 25 mm to 10000 mm, and diameters – from 12.7 mm to 50.8 mm.



SPECIFICATIONS

Material	BK7, UV FS, CaF ₂
Surface quality	40 – 20 scratch & dig (MIL-PRF-13830B)
Clear aperture	90% of the diameter
Diameter tolerance	+0.00 / -0.12 mm
Thickness tolerance	±0.5 mm
Surface irregularity	λ/8 @ 633 nm
Surface irregularity for CaF ₂	λ/4 @ 633 nm
Concentricity	3 arcmin
Paraxial focal length	BK7 ±2% @ 546 nm
	UV FS ±2% @ 355 nm
	CaF ₂ ±2% @ 2940 nm

Please contact us if you can not find the lens that you need. We can provide a wide range of special focal lengths, diameters and coatings.

BK7 PLANO-CONVEX LENSES

Focal length F, mm	Diameter D, mm	Centre thickness CT, mm	Edge thickness ET, mm	Radius, mm	Catalogue number	Price, EUR
20.0	12.7	4.5	2.3	10.4	110-0104E	15
25.0	12.7	4.0	2.3	13.0	110-0105E	15
30.0	12.7	3.5	2.1	15.6	110-0106E	15
40.0	12.7	3.0	2.0	20.7	110-0107E	15
50.0	12.7	3.0	2.2	25.9	110-0109E	15
60.0	12.7	3.0	2.3	31.1	110-0111E	15
75.0	12.7	3.0	2.5	38.9	110-0115E	15
100.0	12.7	3.0	2.6	51.9	110-0117E	15
150.0	12.7	3.0	2.7	77.8	110-0121E	15
200.0	12.7	3.0	2.8	103.7	110-0123E	15
250.0	12.7	3.0	2.8	129.7	110-0125E	15
300.0	12.7	3.0	2.9	155.6	110-0126E	15
350.0	12.7	3.0	2.9	181.6	110-0127E	15
500.0	12.7	2.1	2.0	259.4	110-0129E	15
1000.0	12.7	2.1	2.1	518.7	110-0135E	15
1500.0	12.7	2.1	2.1	778.1	110-0145E	15
30.0	25.4	8.5	1.9	15.6	110-0205E	25
40.0	25.4	6.1	1.8	20.7	110-0207E	20
50.0	25.4	5.0	1.7	25.9	110-0209E	19
60.0	25.4	4.4	1.7	31.1	110-0211E	19

Focal length F, mm	Diameter D, mm	Centre thickness CT, mm	Edge thickness ET, mm	Radius, mm	Catalogue number	Price, EUR
75.0	25.4	4.0	1.9	38.9	110-0215E	19
90.0	25.4	3.8	2.0	46.7	110-0218E	19
100.0	25.4	3.5	1.9	51.9	110-0219E	19
125.0	25.4	3.2	1.9	64.8	110-0223E	19
150.0	25.4	3.0	2.0	77.8	110-0227E	19
175.0	25.4	3.0	2.1	90.8	110-0229E	18
200.0	25.4	3.0	2.2	103.7	110-0231E	18
250.0	25.4	3.0	2.4	129.7	110-0235E	18
300.0	25.4	3.0	2.5	155.6	110-0239E	18
350.0	25.4	3.0	2.6	181.6	110-0241E	18
400.0	25.4	3.0	2.6	207.5	110-0243E	18
450.0	25.4	3.0	2.7	233.4	110-0245E	18
500.0	25.4	3.0	2.7	259.4	110-0247E	18
550.0	25.4	3.0	2.7	285.3	110-0248E	18
600.0	25.4	3.0	2.7	311.2	110-0249E	18
700.0	25.4	3.0	2.8	363.1	110-0251E	18
800.0	25.4	3.0	2.8	415.0	110-0255E	18
900.0	25.4	3.0	2.8	466.8	110-0257E	18
1000.0	25.4	3.0	2.8	518.7	110-0259E	18
1200.0	25.4	3.0	2.9	622.5	110-0263E	18

Focal length F, mm	Diameter D, mm	Centre thickness CT, mm	Edge thickness ET, mm	Radius, mm	Catalogue number	Price, EUR
1250.0	25.4	3.0	2.9	648.4	110-0264E	18
1300.0	25.4	3.0	2.9	674.3	110-0265E	18
1400.0	25.4	3.0	2.9	726.2	110-0266E	18
1500.0	25.4	3.0	2.9	778.1	110-0267E	18
1600.0	25.4	3.0	2.9	830.0	110-0268E	18
1750.0	25.4	3.0	2.9	907.8	110-0269E	18
1900.0	25.4	3.0	2.9	985.6	110-0270E	18
2000.0	25.4	3.0	2.9	1037.4	110-0271E	18
2500.0	25.4	3.0	2.9	1296.8	110-0275E	18
3000.0	25.4	3.0	2.9	1556.2	110-0281E	18
4000.0	25.4	3.0	3.0	2074.9	110-0285E	18
5000.0	25.4	3.0	3.0	2593.6	110-0289E	18
10000.0	25.4	3.0	3.0	5187.2	110-0295E	18
50.0	38.1	12.0	3.7	25.9	110-0405E	37
63.5	38.1	8.0	1.9	32.9	110-0406E	32
75.0	38.1	7.3	2.3	38.9	110-0407E	32
100.0	38.1	6.5	2.9	51.9	110-0409E	29
150.0	38.1	5.1	2.7	77.8	110-0411E	29
200.0	38.1	4.3	2.5	103.7	110-0415E	29
250.0	38.1	4.0	2.6	129.7	110-0417E	29
300.0	38.1	4.0	2.8	155.6	110-0419E	29
350.0	38.1	4.0	3.0	181.6	110-0421E	29
400.0	38.1	4.0	3.1	207.5	110-0423E	29
500.0	38.1	4.0	3.3	259.4	110-0427E	29
700.0	38.1	4.0	3.5	363.1	110-0435E	28
1000.0	38.1	4.0	3.7	518.7	110-0445E	28
2500.0	38.1	4.0	3.8	1296.8	110-0450E	28
5000.0	38.1	4.0	3.9	2593.6	110-0455E	28

Focal length F, mm	Diameter D, mm	Centre thickness CT, mm	Edge thickness ET, mm	Radius, mm	Catalogue number	Price, EUR
75.0	50.8	12.3	2.9	38.9	110-0502E	55
100.0	50.8	10.4	3.8	51.9	110-0505E	49
150.0	50.8	7.2	2.9	77.8	110-0507E	46
200.0	50.8	6.1	2.9	103.7	110-0509E	45
250.0	50.8	5.4	2.9	129.7	110-0511E	45
300.0	50.8	5.0	2.9	155.6	110-0515E	45
350.0	50.8	4.7	2.9	181.6	110-0519E	45
400.0	50.8	5.5	3.9	207.5	110-0523E	45
500.0	50.8	5.2	4.0	259.4	110-0525E	45
600.0	50.8	5.0	4.0	311.2	110-0527E	45
650.0	50.8	5.0	4.0	337.2	110-0528E	45
700.0	50.8	5.0	4.1	363.1	110-0529E	45
800.0	50.8	5.0	4.2	415.0	110-0531E	45
1000.0	50.8	5.0	4.4	518.7	110-0535E	45
1500.0	50.8	5.0	4.6	778.1	110-0540E	45
2000.0	50.8	5.0	4.7	1037.4	110-0545E	45
5000.0	50.8	5.0	4.9	2593.6	110-0555E	45
10000.0	50.8	5.0	4.9	5187.2	110-0565E	45
250.0	76.2	12.7	7.0	129.7	110-0711E	120
300.0	76.2	11.7	7.0	155.6	110-0715E	120
400.0	76.2	10.5	7.0	207.5	110-0723E	120
500.0	76.2	9.8	7.0	259.4	110-0725E	120
750.0	76.2	8.9	7.0	389.0	110-0730E	120
1000.0	76.2	8.4	7.0	518.7	110-0735E	120
1500.0	76.2	7.9	7.0	778.1	110-0740E	120
2000.0	76.2	7.7	7.0	1037.4	110-0745E	120
3000.0	76.2	7.5	7.0	1556.2	110-0748E	120

COATINGS

WINDOWS & FILTERS

MIRRORS

LENSES

PRISMS

POLARIZING OPTICS

UV & IR OPTICS

UV FS PLANO-CONVEX LENSES

Focal length F, mm	Diameter D, mm	Centre thickness CT, mm	Edge thickness ET, mm	Radius, mm	Catalogue number	Price, EUR
25.0	12.7	4.0	2.2	11.9	110-1105E	48
30.0	12.7	3.7	2.2	14.3	110-1106E	48
40.0	12.7	2.5	1.1	19.0	110-1108E	48
50.0	12.7	3.0	2.1	23.8	110-1109E	48
75.0	12.7	3.0	2.4	35.7	110-1111E	48
80.0	12.7	3.5	2.5	38.0	110-1112E	48
90.0	12.7	3.5	3.0	42.8	110-1114E	48
100.0	12.7	3.0	2.6	47.6	110-1115E	48
125.0	12.7	3.0	2.7	59.4	110-1117E	47
150.0	12.7	3.0	2.7	71.3	110-1119E	47
175.0	12.7	3.0	2.8	83.2	110-1121E	47
200.0	12.7	3.0	2.8	95.1	110-1123E	47
250.0	12.7	3.0	2.8	118.9	110-1127E	47
300.0	12.7	3.0	2.9	142.7	110-1129E	47
350.0	12.7	3.0	2.9	166.4	110-1131E	47
400.0	12.7	3.0	2.9	190.2	110-1133E	47
750.0	12.7	3.0	2.9	357.1	110-1141E	47
30.0	25.4	9.75	2.0	14.3	110-1203E	70
40.0	25.4	7.0	2.1	19.0	110-1204E	70
50.0	25.4	6.0	2.3	23.8	110-1205E	70
60.0	25.4	5.0	2.0	28.5	110-1207E	70
75.0	25.4	4.5	2.2	35.7	110-1209E	70
80.0	25.4	4.6	2.4	38.0	110-1210E	70
100.0	25.4	4.0	2.3	47.6	110-1211E	70
125.0	25.4	4.0	2.6	59.4	110-1216E	70
150.0	25.4	4.0	2.9	71.3	110-1217E	65
175.0	25.4	4.0	3.0	83.2	110-1218E	65

Focal length F, mm	Diameter D, mm	Centre thickness CT, mm	Edge thickness ET, mm	Radius, mm	Catalogue number	Price, EUR
200.0	25.4	4.0	3.1	95.1	110-1219E	65
250.0	25.4	4.0	3.3	118.9	110-1221E	65
300.0	25.4	4.0	3.4	142.7	110-1223E	65
350.0	25.4	4.0	3.5	166.4	110-1225E	65
400.0	25.4	4.0	3.6	190.2	110-1227E	60
500.0	25.4	4.0	3.7	237.8	110-1233E	60
550.0	25.4	4.0	3.7	261.5	110-1234E	60
600.0	25.4	4.0	3.7	285.3	110-1235E	60
700.0	25.4	4.0	3.8	332.9	110-1238E	60
750.0	25.4	4.0	3.8	356.6	110-1239E	60
800.0	25.4	4.0	3.8	380.4	110-1240E	60
1000.0	25.4	4.0	3.8	475.5	110-1245E	60
1100.0	25.4	4.0	3.8	523.1	110-1246E	60
1500.0	25.4	4.0	3.9	713.3	110-1255E	60
2000.0	25.4	4.0	3.9	951.0	110-1265E	60
5000.0	25.4	4.0	4.0	2377.5	110-1275E	60
50.0	38.1	13.5	3.9	23.8	110-1405E	113
75.0	38.1	8.6	3.1	35.7	110-1409E	113
100.0	38.1	6.9	2.9	47.6	110-1411E	113
150.0	38.1	5.4	2.8	71.3	110-1415E	113
200.0	38.1	4.0	2.1	95.1	110-1419E	113
250.0	38.1	4.0	2.5	118.9	110-1423E	113
300.0	38.1	4.0	2.7	142.7	110-1427E	111
350.0	38.1	4.0	3.0	181.6	110-1421E	111
400.0	38.1	4.0	3.0	190.2	110-1431E	111
500.0	38.1	4.0	3.2	237.8	110-1435E	111
600.0	38.1	4.0	3.4	285.3	110-1439E	111

Focal length F, mm	Diameter D, mm	Centre thickness CT, mm	Edge thickness ET, mm	Radius, mm	Catalogue number	Price, EUR
1000.0	38.1	4.0	3.6	475.5	110-1445E	111
1500.0	38.1	4.0	3.7	713.3	110-1455E	111
2500.0	38.1	4.0	3.8	1296.8	110-1450E	111
3000.0	38.1	4.0	3.9	1426.5	110-1465E	111
5000.0	38.1	4.0	3.9	2377.5	110-1475E	111
75.0	50.8	12.2	1.6	35.7	110-1505E	141
100.0	50.8	9.6	2.2	47.6	110-1509E	138
150.0	50.8	6.5	1.8	71.3	110-1511E	138
200.0	50.8	6.0	2.5	95.1	110-1515E	138
250.0	50.8	6.0	3.3	118.9	110-1517E	138
300.0	50.8	6.0	3.7	142.7	110-1519E	138
350.0	50.8	6.0	4.1	166.6	110-1521E	138
400.0	50.8	6.0	4.3	190.2	110-1523E	138
500.0	50.8	6.0	4.6	237.8	110-1527E	138
600.0	50.8	6.0	4.9	285.3	110-1531E	138
700.0	50.8	6.0	5.0	332.9	110-1533E	138
800.0	50.8	6.0	5.2	380.4	110-1535E	138
1000.0	50.8	6.0	5.3	475.5	110-1545E	138
1500.0	50.8	6.0	5.5	713.3	110-1550E	138
2000.0	50.8	6.0	5.7	951.0	110-1555E	138
2500.0	50.8	6.0	5.7	1188.8	110-1565E	138
3000.0	50.8	6.0	5.8	1426.5	110-1564E	138
4000.0	50.8	6.0	5.8	1902.0	110-1566E	138
5000.0	50.8	5.0	4.9	2377.5	110-1567E	138

Focal length F, mm	Diameter D, mm	Centre thickness CT, mm	Edge thickness ET, mm	Radius, mm	Catalogue number	Price, EUR
250.0	76.2	9.0	2.7	118.9	110-1717E	350
300.0	76.2	8.0	2.8	142.7	110-1719E	350
500.0	76.2	7.0	3.9	237.8	110-1727E	350
1000.0	76.2	6.0	4.5	475.5	110-1745E	350
1500.0	76.2	6.0	5.0	713.3	110-1750E	350
2000.0	76.2	6.0	5.2	951.0	110-1755E	350

We can supply custom cutting, edging, coating or complete fabrication if required.

Ordering of Coated Lenses

Please choose relevant coating from anti-reflection coatings section (pages 1.5 - 1.6). The coating code and price should be added to the lens code and price.

Example:

BK7 pl/cx lens Ø12.7 mm, F=1500 mm, coated AR/AR@400-700 nm, AOI=0°

Code: **110-0145E + ARB550**,

Lens code Coating code

Price: 15 + 56 EUR= 71 EUR/pc.

Lens price Coating price

For lenses
Ø12.5 - 25.4 mm please add
Ø25 coating price

For lenses
Ø38.1 - 50.8 mm please add
Ø50 coating price

CAF₂ PLANO-CONVEX LENSES

Focal length F, mm	Diameter D, mm	Centre thickness CT, mm	Edge thickness ET, mm	Radius, mm	Catalogue number	Price, EUR
25.0	12.7	4.1	2.0	10.5	110-5105E	70
50.0	12.7	3.0	2.0	20.9	110-5109E	70
75.0	12.7	2.6	2.0	31.4	110-5111E	70
100.0	12.7	2.5	2.0	41.8	110-5115E	70
150.0	12.7	2.3	2.0	62.7	110-5119E	70
200.0	12.7	2.2	2.0	83.6	110-5123E	70
250.0	12.7	2.2	2.0	104.6	110-5127E	70
500.0	12.7	2.1	2.0	209.1	110-5135E	70
1000.0	12.7	3.0	3.0	418.2	110-5145E	70
40.0	25.4	7.9	2.1	16.7	110-5204E	75
50.0	25.4	7.3	3.0	20.9	110-5205E	75
75.0	25.4	5.7	3.0	31.4	110-5209E	75
100.0	25.4	5.0	3.0	41.8	110-5211E	75
125.0	25.4	5.0	3.4	52.3	110-5213E	75
150.0	25.4	4.3	3.0	62.7	110-5217E	75
200.0	25.4	4.0	3.0	83.6	110-5219E	75
250.0	25.4	3.8	3.0	104.6	110-5221E	75
300.0	25.4	3.7	3.1	125.5	110-5222E	75
400.0	25.4	3.5	3.0	167.3	110-5228E	75
500.0	25.4	3.4	3.0	209.1	110-5223E	75
650.0	25.4	3.3	3.0	271.8	110-5229E	75
750.0	25.4	3.0	2.7	313.7	110-5225E	75
1000.0	25.4	3.2	3.0	418.2	110-5227E	75
1500.0	25.4	3.2	3.1	627.3	110-5235E	75
2000.0	25.4	3.1	3.0	836.5	110-5240E	75
3000.0	25.4	3.1	3.0	1254.7	110-5245E	75

Focal length F, mm	Diameter D, mm	Centre thickness CT, mm	Edge thickness ET, mm	Radius, mm	Catalogue number	Price, EUR
75.0	50.8	15.9	2.9	31.4	110-5509E	320
100.0	50.8	11.6	3.0	41.8	110-5511E	280
150.0	50.8	8.4	3.0	62.7	110-5517E	260
200.0	50.8	7.0	3.1	83.6	110-5519E	250
250.0	50.8	5.6	2.5	104.6	110-5520E	250
300.0	50.8	5.6	3.0	125.5	110-5522E	250
400.0	50.8	5.6	3.7	167.3	110-5524E	250
500.0	50.8	5.0	3.5	209.1	110-5523E	250
750.0	50.8	5.0	4.0	313.7	110-5528E	250
1000.0	50.8	5.0	4.2	418.2	110-5535E	250
1500.0	50.8	5.0	4.5	627.3	110-5545E	250
1700.0	50.8	5.0	4.5	711.0	110-5550E	250
2000.0	50.8	5.0	4.6	836.5	110-5555E	250

HOUSING ACCESSORIES

Self-Centering
Lens Mounts
830-0010, 830-0020



BICONVEX LENSES

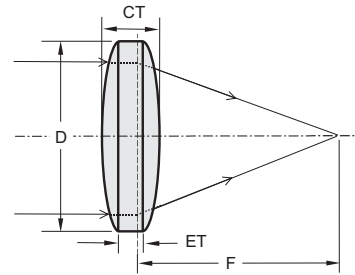
FEATURES

- › Have positive focal lengths
- › Converge incident light
- › Form both real and virtual images
- › Minimise spherical aberration as well as cancel coma and distortion at a unit conjugate ratio

Biconvex lenses are all symmetrical, having equal radii on both sides. They are recommended for virtual imaging of real objects and for positive conjugate ratios from 0.2 up to 5. Outside this ratio range plano-convex lenses are usually more suitable. Biconvex lenses are used as magnifiers, objectives, some condensing systems.

Since both surfaces contribute to the power of biconvex lenses, they have shorter focal lengths than plano-convex lenses of equal diameter and surface radius.

*Upon customer's request, lenses may be anti-reflection coated. For a required coating please refer to **Coatings Section**.*



SPECIFICATIONS

Material	BK7, UV FS	
Surface quality	40 – 20 scratch & dig (MIL-PRF-13830B)	
Clear aperture	90% of the diameter	
Diameter tolerance	+0.00 / -0.12 mm	
Thickness tolerance	±0.5 mm	
Surface irregularity	λ/8 @ 633 nm	
Concentricity	3 arcmin	
Paraxial focal length	BK7	±2% @ 546 nm
	UV FS	±2% @ 355 nm

Please contact us if you can not find the lens that you need. We can provide a wide range of special focal lengths, diameters and coatings.

BK7 BICONVEX LENSES

Focal length F, mm	Diameter D, mm	Centre thickness CT, mm	Edge thickness ET, mm	Radius, mm	Catalogue number	Price, EUR
12.7	12.7	4.8	1.3	12.3	111-0104E	16
25.0	12.7	3.5	1.9	25.3	111-0108E	16
40.0	12.7	2.5	1.5	41.1	111-0114E	16
50.0	12.7	2.5	1.7	51.4	111-0116E	16
60.0	12.7	2.5	1.8	61.8	111-0118E	16
75.0	12.7	2.5	2.0	77.4	111-0120E	15
100.0	12.7	2.0	1.6	103.4	111-0124E	15
125.0	12.7	2.0	1.7	129.3	111-0128E	15
150.0	12.7	2.0	1.7	155.3	111-0132E	15
200.0	12.7	2.0	1.8	207.1	111-0136E	15
250.0	12.7	2.0	1.8	259.0	111-0140E	15
300.0	12.7	2.0	1.9	310.9	111-0144E	15
400.0	12.7	2.0	1.9	414.6	111-0148E	15
500.0	12.7	3.0	2.9	518.2	111-0152E	15
25.0	25.4	9.0	1.8	24.3	111-0204E	21
30.0	25.4	7.5	1.8	29.8	111-0206E	21
40.0	25.4	6.0	1.9	40.4	111-0208E	21
50.0	25.4	6.0	2.8	50.8	111-0210E	19
60.0	25.4	4.0	1.4	61.6	111-0214E	19
75.0	25.4	4.0	1.9	77.1	111-0216E	19
100.0	25.4	4.0	2.4	103.1	111-0218E	17
150.0	25.4	4.0	3.0	154.9	111-0222E	17
200.0	25.4	4.0	3.2	206.8	111-0226E	17
250.0	25.4	4.0	3.4	258.7	111-0228E	17
300.0	25.4	4.0	3.5	310.5	111-0229E	17
500.0	25.4	4.0	3.7	518.0	111-0234E	17
700.0	25.4	4.0	3.8	725.5	111-0240E	17
1000.0	25.4	4.0	3.8	1036.8	111-0250E	17

Focal length F, mm	Diameter D, mm	Centre thickness CT, mm	Edge thickness ET, mm	Radius, mm	Catalogue number	Price, EUR
50.0	38.1	10.5	3.0	50.0	111-0404E	31
100.0	38.1	6.0	2.4	102.7	111-0410E	31
150.0	38.1	5.0	2.6	154.8	111-0414E	31
200.0	38.1	5.0	3.2	206.6	111-0418E	31
250.0	38.1	5.0	3.6	258.5	111-0422E	31
300.0	38.1	5.0	3.8	310.4	111-0426E	31
400.0	38.1	5.0	4.1	414.1	111-0430E	31
500.0	38.1	5.0	4.3	517.9	111-0434E	30
700.0	38.1	5.0	4.5	725.4	111-0440E	30
1000.0	38.1	5.0	4.6	1036.6	111-0450E	30
50.0	50.8	15.0	0.9	49.2	111-0504E	51
75.0	50.8	10.0	1.3	76.1	111-0508E	48
100.0	50.8	8.5	2.1	102.3	111-0510E	48
150.0	50.8	6.1	1.9	154.6	111-0512E	47
200.0	50.8	5.0	1.9	206.6	111-0514E	47
300.0	50.8	5.0	2.9	310.4	111-0518E	47
400.0	50.8	5.0	3.4	414.1	111-0522E	47
500.0	50.8	5.0	3.8	517.9	111-0526E	47
750.0	50.8	5.0	4.2	777.2	111-0534E	47
1000.0	50.8	5.0	4.4	1036.6	111-0544E	47
1200.0	50.8	5.0	4.5	1244.1	111-0550E	47
5000.0	50.8	5.0	4.9	2593.6	111-0555E	47

HOUSING ACCESSORIES

Self-Centering
Lens Mounts
830-0010, 830-0020



COATINGS

WINDOWS & FILTERS

MIRRORS

LENSES

PRISMS

POLARIZING OPTICS

UV & IR OPTICS

UV FS BICONVEX LENSES

OPTICAL COMPONENTS

NONLINEAR & LASER CRYSTALS

ND:YAG LASERLINE COMPONENTS

FEMTOLINE COMPONENTS

OPTICAL SYSTEMS

OPTO-MECHANICAL COMPONENTS

Focal length F, mm	Diameter D, mm	Centre thickness CT, mm	Edge thickness ET, mm	Radius, mm	Catalogue number	Price, EUR
12.7	12.7	6.0	2.0	11.0	111-1104E	49
25.0	12.7	3.5	1.7	23.2	111-1108E	48
50.0	12.7	3.0	2.1	47.1	111-1114E	48
75.0	12.7	2.5	1.9	70.9	111-1118E	48
100.0	12.7	2.3	1.9	94.7	111-1122E	48
150.0	12.7	2.2	1.9	142.3	111-1126E	48
25.0	25.4	10.0	1.9	22.0	111-1204E	71
40.0	25.4	7.1	2.6	36.9	111-1207E	71
50.0	25.4	6.0	2.5	46.6	111-1210E	71
75.0	25.4	4.0	1.7	70.7	111-1214E	65
100.0	25.4	4.0	2.3	94.5	111-1218E	65
150.0	25.4	3.2	2.1	142.1	111-1222E	65
200.0	25.4	3.0	2.1	189.7	111-1226E	65
250.0	25.4	3.0	2.3	237.3	111-1230E	65
300.0	25.4	3.0	2.4	284.8	111-1234E	60
400.0	25.4	3.0	2.6	379.9	111-1238E	60
500.0	25.4	3.0	2.7	475.0	111-1240E	60
750.0	25.4	3.0	2.8	712.8	111-1250E	60
1000.0	25.4	3.0	2.8	950.5	111-1260E	60

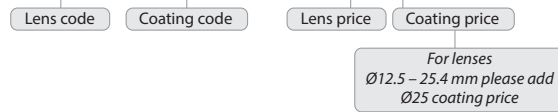
Focal length F, mm	Diameter D, mm	Centre thickness CT, mm	Edge thickness ET, mm	Radius, mm	Catalogue number	Price, EUR
50.0	38.1	11.0	2.7	45.7	111-1404E	116
100.0	38.1	5.0	1.1	94.3	111-1410E	116
150.0	38.1	5.0	2.4	141.8	111-1414E	116
200.0	38.1	5.0	3.1	189.4	111-1418E	116
250.0	38.1	4.0	2.5	237.1	111-1422E	114
300.0	38.1	5.0	3.7	284.5	111-1426E	114
400.0	38.1	5.0	4.0	379.6	111-1430E	114
500.0	38.1	5.0	4.2	474.7	111-1434E	113
700.0	38.1	5.0	4.5	664.9	111-1440E	113
1000.0	38.1	4.7	4.3	950.2	111-1460E	113
50.0	50.8	16.2	1.0	44.8	111-1504E	149
75.0	50.8	10.3	1.1	69.6	111-1508E	148
100.0	50.8	10.0	2.9	93.5	111-1514E	147
150.0	50.8	7.5	3.0	141.4	111-1517E	147
175.0	50.8	6.6	3.0	165.4	111-1520E	147
200.0	50.8	7.0	3.5	189.1	111-1522E	147
250.0	50.8	6.0	3.8	236.8	111-1526E	147
300.0	50.8	6.0	3.7	284.3	111-1530E	146
500.0	50.8	6.0	4.8	474.5	111-1534E	146
1000.0	50.8	6.0	5.4	950.0	111-1550E	146

Ordering of Coated Lenses

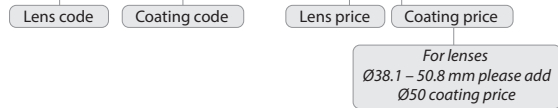
Please choose relevant coating from anti-reflection coatings section (pages 1.5 - 1.6). The coating code and price should be added to the lens code and price.

Example:

1) BK7 bi/cx lens Ø12.7 mm, F=400 mm, coated AR/AR@400-700 nm, AOI=0°
Code: **111-0148E** + **ARB550**, Price: 15 + 56 EUR= 71 EUR/pc.



2) BK7 bi/cx lens Ø38.1 mm, F=1000 mm, coated AR/AR@400-700 nm, AOI=0°
Code: **111-0450E** + **ARB550**, Price: 30 + 67 EUR= 97 EUR/pc.



PLANO-CONCAVE LENSES

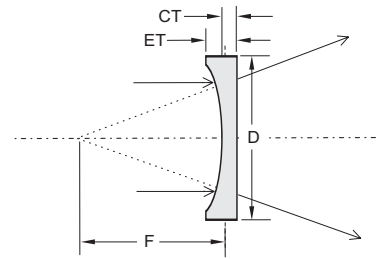
FEATURES

- › Have negative focal lengths
- › Diverge collimated incident light
- › Form only virtual images which are seen through the lens
- › Reduce spherical aberration, coma and distortion at negative-infinite or near-infinite conjugate ratios
- › With the concave surface facing the longest conjugate distance

These lenses are thicker at the edge than in the centre and flat on one side. The plano-concave lenses are used to expand light beams or to increase focal lengths in optical systems. They are often employed for beam expansion of high peak power pulsed lasers. A beam incident on a concave surface will be focused to a point outside the instrument.

Air heating and ionisation at the unwanted focal point are possible with corresponding mode disruption or material damage. To avoid this problem, the input lens should be reversed so that no concave surface faces a parallel beam.

A variety of anti-reflection coatings is available for these lenses. For an appropriate coating, please refer to the **Coatings Section**.



SPECIFICATIONS

Material	BK7, UV FS, CaF ₂	
Surface quality	40 – 20 scratch & dig (MIL-PRF-13830B)	
Clear aperture	90% of the diameter	
Diameter tolerance	+0.00 / -0.12 mm	
Thickness tolerance	±0.5 mm	
Surface irregularity	λ/8 @ 633 nm	
Surface irregularity for CaF ₂	λ/4 @ 546 nm	
Concentricity	3 arcmin	
Paraxial focal length	BK7	±2% @ 546 nm
	UV FS	±2% @ 355 nm
	CaF ₂	±2% @ 2940 nm

Please contact us if you can not find the lens that you need. We can provide a wide range of special focal lengths, diameters and coatings.

BK7 PLANO-CONCAVE LENSES

Focal length F, mm	Diameter D, mm	Centre thickness CT, mm	Edge thickness ET, mm	Radius, mm	Catalogue number	Price, EUR
-25.0	12.7	1.9	3.5	-13.0	112-0105E	14
-50.0	12.7	2.7	3.5	-25.9	112-0109E	14
-60.0	12.7	2.4	3.1	-31.1	112-0112E	14
-75.0	12.7	2.9	3.4	-38.9	112-0115E	14
-100.0	12.7	3.0	3.4	-51.9	112-0117E	14
-125.0	12.7	3.1	3.4	-64.8	112-0119E	14
-150.0	12.7	3.2	3.5	-77.8	112-0121E	14
-200.0	12.7	3.3	3.5	-103.7	112-0123E	14
-250.0	12.7	3.3	3.5	-129.7	112-0125E	14
-300.0	12.7	2.9	3.0	-155.6	112-0127E	14
-30.0	25.4	1.4	7.9	-15.6	112-0205E	18
-40.0	25.4	1.7	5.9	-20.7	112-0207E	18
-50.0	25.4	2.8	6.0	-25.9	112-0209E	18
-75.0	25.4	2.9	4.9	-38.9	112-0215E	17
-100.0	25.4	3.1	4.6	-51.9	112-0219E	17
-125.0	25.4	3.0	4.2	-64.8	112-0223E	17
-150.0	25.4	2.7	3.7	-77.8	112-0227E	17
-200.0	25.4	3.0	3.8	-103.7	112-0231E	17
-250.0	25.4	3.1	3.7	-129.7	112-0235E	17
-300.0	25.4	3.1	3.6	-155.6	112-0239E	17

Focal length F, mm	Diameter D, mm	Centre thickness CT, mm	Edge thickness ET, mm	Radius, mm	Catalogue number	Price, EUR
-400.0	25.4	3.6	4.0	-207.5	112-0243E	17
-450.0	25.4	3.6	3.9	-233.4	112-0245E	17
-500.0	25.4	3.7	4.0	-259.4	112-0247E	17
-650.0	25.4	3.7	3.9	-337.2	112-0250E	17
-750.0	25.4	3.8	4.0	-389.0	112-0252E	17
-1000.0	25.4	3.8	4.0	-518.7	112-0259E	17
-1500.0	25.4	3.9	4.0	-778.1	112-0260E	17
-2000.0	25.4	3.9	4.0	-1037.4	112-0261E	17
-3000.0	25.4	3.9	4.0	-1556.2	112-0263E	17
-5000.0	25.4	3.9	3.9	-2593.6	112-0265E	17
-100.0	38.1	2.0	5.5	-51.9	112-0409E	28
-150.0	38.1	3.3	5.6	-77.8	112-0411E	28
-200.0	38.1	4.1	5.8	-103.7	112-0415E	28
-300.0	38.1	4.7	5.8	-155.6	112-0419E	28
-75.0	50.8	3.0	12.0	-38.9	112-0502E	55
-100.0	50.8	3.5	10.0	-51.9	112-0505E	49
-125.0	50.8	5.0	10.0	-64.8	112-0506E	48
-150.0	50.8	5.0	9.0	-77.8	112-0507E	46
-200.0	50.8	5.0	8.0	-103.7	112-0509E	45
-250.0	50.8	5.0	7.5	-129.7	112-0511E	45

UV FS PLANO-CONCAVE LENSES

Focal length F, mm	Diameter D, mm	Centre thickness CT, mm	Edge thickness ET, mm	Radius, mm	Catalogue number	Price, EUR
-25.0	12.7	1.3	3.0	-11.9	112-1105E	47
-50.0	12.7	2.2	3.0	-23.8	112-1109E	47
-60.0	12.7	2.4	3.0	-28.5	112-1110E	47
-75.0	12.7	2.5	3.0	-35.7	112-1111E	46
-80.0	12.7	2.6	3.0	-38.0	112-1112E	46
-90.0	12.7	2.6	3.0	-42.8	112-1114E	46
-100.0	12.7	2.7	3.0	-47.6	112-1115E	46
-125.0	12.7	2.7	3.0	-59.4	112-1117E	46
-150.0	12.7	2.7	3.0	-71.3	112-1119E	46
-175.0	12.7	2.8	3.0	-83.2	112-1121E	46
-200.0	12.7	2.8	3.0	-95.1	112-1123E	46
-250.0	12.7	2.8	3.0	-118.9	112-1127E	46
-30.0	25.4	1.6	9.0	-14.3	112-1203E	75
-50.0	25.4	1.9	5.5	-23.8	112-1205E	70
-75.0	25.4	3.1	5.3	-35.7	112-1209E	70
-100.0	25.4	3.0	4.7	-47.6	112-1211E	70
-125.0	25.4	3.0	4.4	-59.4	112-1215E	70
-150.0	25.4	3.1	4.2	-71.3	112-1217E	65

Focal length F, mm	Diameter D, mm	Centre thickness CT, mm	Edge thickness ET, mm	Radius, mm	Catalogue number	Price, EUR
-200.0	25.4	3.1	4.0	-95.1	112-1219E	65
-250.0	25.4	3.3	4.0	-118.9	112-1221E	65
-300.0	25.4	3.4	4.0	-142.7	112-1223E	65
-400.0	25.4	3.6	4.0	-190.2	112-1227E	60
-500.0	25.4	3.7	4.0	-237.8	112-1233E	60
-750.0	25.4	3.8	4.0	-356.6	112-1239E	60
-1000.0	25.4	3.8	4.0	-475.5	112-1245E	60
-5000.0	25.4	2.0	4.0	-2377.5	112-1255E	60
-100.0	38.1	2.4	6.4	-47.6	112-1411E	110
-150.0	38.1	3.0	5.5	-71.3	112-1415E	110
-200.0	38.1	3.0	4.9	-95.1	112-1419E	110
-300.0	38.1	4.3	5.6	-142.7	112-1427E	110
-100.0	50.8	5.0	11.9	-47.6	112-1509E	138
-150.0	50.8	3.2	7.9	-71.4	112-1512E	138
-250.0	50.8	3.1	5.7	-118.9	112-1517E	138
-300.0	50.8	3.5	5.8	-142.8	112-1519E	138
-500.0	50.8	4.7	6.0	-237.8	112-1527E	138
-2000.0	50.8	5.8	6.0	-951.0	112-1540E	138

CAF₂ PLANO-CONCAVE LENSES

Focal length F, mm	Diameter D, mm	Centre thickness CT, mm	Edge thickness ET, mm	Radius, mm	Catalogue number	Price, EUR
-25.0	12.7	1.9	4.0	-10.5	112-5105E	70
-50.0	12.7	2.0	3.0	-20.9	112-5109E	70
-75.0	12.7	2.4	3.0	-31.4	112-5111E	70
-100.0	12.7	2.5	3.0	-41.8	112-5115E	70
-150.0	12.7	2.7	3.0	-62.7	112-5120E	70
-200.0	12.7	1.8	2.0	-83.6	112-5125E	70
-250.0	12.7	1.8	2.0	-104.6	112-5130E	70
-500.0	12.7	1.9	2.0	-209.1	112-5135E	70
-40.0	25.4	2.5	7.8	-16.7	112-5204E	75
-50.0	25.4	2.7	7.0	-20.9	112-5205E	75
-75.0	25.4	2.8	5.5	-31.4	112-5209E	75
-100.0	25.4	3.0	5.0	-41.8	112-5211E	75
-150.0	25.4	2.7	4.0	-62.7	112-5217E	75
-200.0	25.4	3.0	4.0	-83.6	112-5219E	75
-250.0	25.4	3.2	4.0	-104.6	112-5223E	75
-300.0	25.4	3.4	4.0	-125.5	112-5225E	75
-400.0	25.4	3.5	4.0	-167.3	112-5228E	75
-500.0	25.4	2.6	3.0	-209.1	112-5230E	75
-1000.0	25.4	2.8	3.0	-418.2	112-5235E	75
-200.0	50.8	3.6	7.2	-83.6	112-5519E	180
-300.0	50.8	3.0	5.6	-125.5	112-5525E	180
-500.0	50.8	4.0	5.5	-209.1	112-5530E	180

HOUSING ACCESSORIES

Adjustable Lens Mounts 830-0030



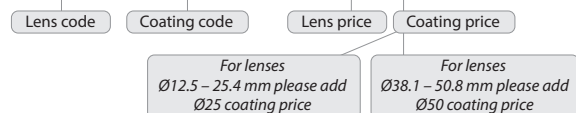
We can supply custom cutting, edging, coating or complete fabrication if required. If you do not find what you need in our catalogue, please send your specification or drawings for a custom quotation.

Ordering of Coated Lenses

Please choose relevant coating from anti-reflection coatings section (pages 1.5 - 1.6). The coating code and price should be added to the lens code and price.

Example:

BK7 pl/cv lens Ø12.7 mm, F=-250 mm, coated AR/AR@400-700 nm, AOI=0°
Code: **112-0125E + ARB550**, Price: 14 + 56 EUR= 70 EUR/pc.



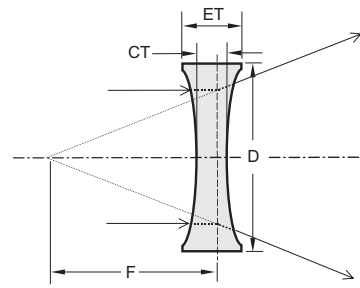
BICONCAVE LENSES

FEATURES

- › Have negative focal lengths, diverge collimated incident light
- › Form only virtual images which are seen through the lens
- › Minimise spherical aberration, coma and distortion at unit conjugate ratio

These lenses are symmetrical, having equal radii on both sides. Biconcave lenses are often used to expand light beams or to increase focal lengths in optical systems, and are normally used in combination with other lenses. Among the many devices utilising biconcave lenses are laser beam expanders, optical character readers, viewers and projection systems.

A variety of anti-reflection coatings is available for these lenses. For appropriate coating, please refer to the **Coatings Section**.



SPECIFICATIONS

Material	BK7, UV FS	
Surface quality	40 – 20 scratch & dig (MIL-PRF-13830B)	
Clear aperture	90% of the diameter	
Diameter tolerance	+0.00 / -0.12 mm	
Thickness tolerance	±0.5 mm	
Surface irregularity	λ/8 @ 633 nm	
Concentricity	3 arcmin	
Paraxial focal length	BK7	±2% @ 546 nm
	UV FS	±2% @ 355 nm

Please contact us if you can not find the lens that you need. We can provide a wide range of special focal lengths, diameters and coatings.

BK7 BICONCAVE LENSES

Focal length F, mm	Diameter D, mm	Centre thickness CT, mm	Edge thickness ET, mm	Radius, mm	Catalogue number	Price, EUR
-12.7	12.7	3.2	5.5	-13.7	114-0104E	15
-25.0	12.7	2.2	3.2	-26.3	114-0106E	15
-40.0	12.7	2.4	3.1	-41.9	114-0108E	15
-50.0	12.7	2.6	3.1	-52.3	114-0110E	15
-60.0	12.7	2.6	3.0	-62.7	114-0112E	15
-75.0	12.7	2.7	3.0	-78.3	114-0114E	15
-100.0	12.7	2.8	3.0	-104.2	114-0118E	15
-125.0	12.7	1.7	2.0	-130.0	114-0120E	14
-150.0	12.7	1.8	2.0	-155.9	114-0124E	14
-200.0	12.7	1.8	2.0	-207.8	114-0128E	14
-250.0	12.7	1.8	2.0	-259.7	114-0132E	14

Focal length F, mm	Diameter D, mm	Centre thickness CT, mm	Edge thickness ET, mm	Radius, mm	Catalogue number	Price, EUR
-25.0	25.4	4.8	10.2	-26.7	114-0204E	19
-40.0	25.4	3.0	6.5	-42.0	114-0206E	19
-50.0	25.4	4.5	7.5	-52.6	114-0208E	19
-60.0	25.4	2.8	5.2	-62.7	114-0210E	19
-75.0	25.4	3.7	5.5	-78.4	114-0212E	18
-100.0	25.4	3.2	4.6	-104.3	114-0214E	17
-125.0	25.4	3.1	4.1	-130.2	114-0218E	17
-150.0	25.4	3.0	4.0	-156.1	114-0220E	17
-200.0	25.4	2.8	3.6	-208.0	114-0224E	17
-250.0	25.4	2.9	3.5	-259.9	114-0228E	17
-400.0	25.4	3.2	3.6	-415.5	114-0234E	17
-500.0	25.4	3.2	3.5	-519.3	114-0238E	17

HOUSING ACCESSORIES

Variable Lens Holder 830-0040



Ordering of Coated Lenses

Please choose relevant coating from anti-reflection coatings section (pages 1.5 - 1.6). The coating code and price should be added to the lens code and price.

Example:

BK7 bi/cv lens Ø12.7 mm, F=-250 mm, coated AR/AR@400-700 nm, AOI=0°
Code: **114-0132E + ARB550**, Price: 14 + 56 EUR= 70 EUR/pc.

Lens code
Coating code
Lens price
Coating price

For lenses
Ø12.5 – 25.4 mm please add
Ø25 coating price

UV FS BICONCAVE LENSES

OPTICAL COMPONENTS

NONLINEAR & LASER CRYSTALS

Focal length F, mm	Diameter D, mm	Centre thickness CT, mm	Edge thickness ET, mm	Radius, mm	Catalogue number	Price, EUR
-12.7	12.7	3.7	6.7	-12.6	114-1104E	49
-25.0	12.7	2.8	4.0	-24.2	114-1108E	49
-30.0	12.7	3.0	4.0	-29.0	114-1110E	49
-50.0	12.7	2.6	3.2	-48.0	114-1114E	49
-75.0	12.7	2.7	3.1	-71.8	114-1118E	49
-100.0	12.7	2.8	3.0	-95.5	114-1122E	47
-25.0	25.4	5.3	12.0	-24.6	114-1204E	71
-30.0	25.4	3.0	7.5	-29.0	114-1205E	71
-50.0	25.4	2.6	6.0	-48.0	114-1208E	71
-75.0	25.4	3.8	6.1	-71.9	114-1212E	71
-100.0	25.4	3.6	5.3	-95.7	114-1216E	71
-150.0	25.4	4.4	5.3	-143.4	114-1220E	71
-200.0	25.4	3.0	3.8	-190.7	114-1224E	70

Please contact us for other size, focus or precision requirements.

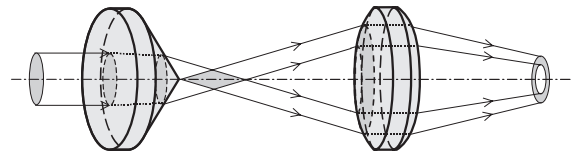
CONICAL LENSES (AXICONS)

FEATURES

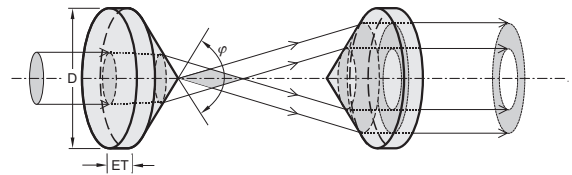
- › Precision and standard grade axicons
- › Can be made from most optical materials
- › Can be supplied with AR and BBAR coatings

We can supply custom cutting, edging, coating or complete fabrication if required. If you cannot find your axicons needed, please send your specification or drawings for a custom quotation.

An axicon with a spherical lens produces an annular focus.



Two axicons together produce a thick-walled hollow "pipe" of light.



Nd:YAG LASERLINE COMPONENTS

FEMTOLINE COMPONENTS

PRECISION GRADE PLANO-CONVEX AXICONS

SPECIFICATIONS

Material	UVFS
Surface quality	40 – 20 scratch & dig (MIL-PRF-13830B)
Clear aperture	90% of the diameter
Diameter tolerance	+0.00 / -0.1 mm
Edge thickness	3.5 mm
Angle tolerance	±0.05° (±3 arcmin)
Surface irregularity	λ/4 @ 633 nm
Apex rounding	< Ø0.4 mm

Apex angle φ, deg	Diameter D, mm	Edge thickness ET, mm	Centre thickness CT, mm	Catalogue number	Price, EUR
90	25.4	3.5	16.2	131-1290	360
130	25.4	3.5	9.4	131-1230	360
140	25.4	3.5	8.1	131-1240	360
160	25.4	3.5	5.7	131-1260	360
165	25.4	3.5	5.2	131-1265	360
170	25.4	3.5	4.6	131-1270	360
175	25.4	3.5	4.1	131-1275	360
176	25.4	3.5	3.9	131-1276	360
177	25.4	3.5	3.8	131-1277	360
178	25.4	3.5	3.7	131-1278	360
179	25.4	3.5	3.6	131-1279	360
160	50.8	5	9.4	131-1560	685
170	50.8	5	7.2	131-1570	685
176	50.8	5	5.9	131-1576	685
178	50.8	5	5.4	131-1578	685
179	50.8	5	5.2	131-1579	685

HOUSING ACCESSORIES

Universal Adjustable Lens/Optics Mount 830-0035



OPTICAL SYSTEMS

OPTO-MECHANICAL COMPONENTS

STANDARD PLANO-CONVEX AXICONS

SPECIFICATIONS

Material	BK7, UV FS
Surface quality	60 – 40 scratch & dig (MIL-PRF-13830B)
Clear aperture	90% of the diameter
Diameter tolerance	+0.00 / -0.12 mm
Angle tolerance	±0.5°
Surface irregularity	1 λ @ 633 nm

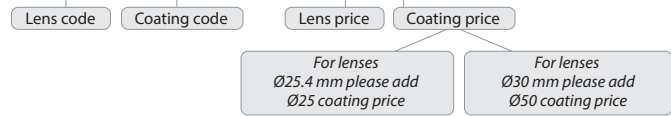
Apex angle φ, deg	Diameter D, mm	Edge thickness ET, mm	Centre thickness CT, mm	BK7		UV FS	
				Catalogue number	Price, EUR	Catalogue number	Price, EUR
140	25.4	8	12.6	130-0240	160	130-1240	283
160	25.4	8	10.2	130-0260	160	130-1260	283
165	25.4	8	9.7	130-0265	160	130-1265	283
170	25.4	8	9.1	130-0270	160	130-1270	283
175	25.4	8	8.6	130-0275	160	130-1275	283
178	25.4	8	8.2	130-0278	160	130-1278	283

Ordering of Coated Lenses

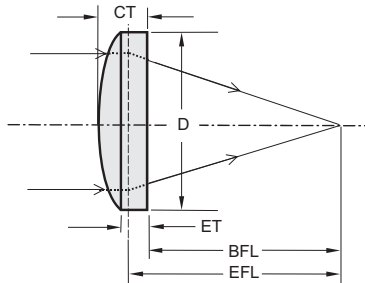
Please choose relevant coating from anti-reflection coatings section (*pages 1.5 - 1.6*). The coating code and price should be added to the lens code and price.

Example:

BK7 axicon Ø30 mm, apex 160°, coated AR/AR@400-700 nm, AOI=0°
Code: **130-0360** + **ARB550**, Price: 197 + 67 EUR= 264 EUR/pc.



PRECISION ASPHERICAL LENSES



Aspherical lenses are designed to reduce spherical aberration. Complex multi-lens systems designed for compensation of spherical aberration can often be replaced with a single aspheric lens. We can produce aspherical lenses of custom design using your drawings or specifications in our CNC lens polishing facility.

SPECIFICATIONS

Standard material [Refractive index]	N-BK7 [1.517] S-LAH64 [1.788] UVFS [1.453]
Design wavelength	780 nm
Surface quality	40 – 20 scratch & dig (uncoated)
Clear aperture	>90% of diameter
Diameter tolerance	+0.0 / -0.05 mm
Bevel	0.3 mm max @ 45°
Center thickness tolerance	≤0.05 mm
EFL tolerance	≤0.1%
Asphere figure error P-V	±1 μm
Surface form deviation RMS	≤0.5 μm

Substrate	D, mm	EFL, mm	BFL, mm	CT, mm	CA, mm	NA	Catalogue number	Price, EUR
S-LAH64	12.5	10	7.6	4.3	11.3	0.544	116-1210	130
N-BK7	12.5	25	22.4	4.0	11.3	0.227	115-1225	130
UVFS	12.7	40	36.2	5.5	11.4	0.144	117-1240	245
S-LAH64	25	20	15.7	7.6	22.5	0.543	116-2520	170
N-BK7	25	50	46	6.0	22.5	0.232	115-2550	170
N-BK7	25	32	27.4	7.0	22.5	0.359	115-2532	170
UVFS	25.4	30	24.5	8.0	22.9	0.398	117-2530	320
UVFS	25.4	40	35.9	6.0	22.9	0.292	117-2540	320
UVFS	25.4	50	46.6	5.0	22.9	0.232	117-2550	320
UVFS	25.4	60	56.6	5.0	22.9	0.192	117-2560	320
S-LAH64	50	40	31.3	15.5	45.0	0.554	116-5040	310
N-BK7	50	100	93.4	10.0	45.0	0.237	115-5100	310

PLANO-CYLINDRICAL LENSES

FEATURES

- › Condense or expand light in one dimension only
- › Ideal for producing line images, for scanning and projection

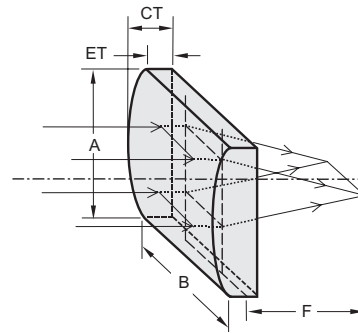
We offer a selection of cylindrical lenses that are either plano-convex or plano-concave in form and rectangular in shape. These lenses are used to focus light to a thin line in laser scanners, spectroscopy, dye lasers, acousto-optics, optical processors and other similar applications. They are the best for circularisation of diode laser outputs, energy collection for linear detectors or for coupling to a slit input.

Earlier remarks made about plano-convex and plano-concave spherical lenses with regard to aberrations and conjugate ratios are also applicable to cylindrical lenses.

A variety of anti-reflection coatings is available for these lenses.
For an appropriate coating, please refer to the **Coatings Section**.

Please contact us for other size, focus or precision requirements.

We can supply custom cutting, edging, coating or complete fabrication if required.



SPECIFICATIONS

Material	BK7, UV FS
Surface quality	40 – 20 scratch & dig (MIL-PRF-13830B)
Clear aperture	90% of the diameter
Size tolerance	±0.5 mm
Thickness tolerance	±0.5 mm
Surface irregularity	λ/4 @ 633 nm
Paraxial focal length	BK7 ±2% @ 546 nm
	UV FS ±2% @ 355 nm

BK7 PLANO-CONVEX CYLINDRICAL LENSES

Focal length F, mm	Dimensions		Centre thickness CT, mm	Edge thickness ET, mm	Radius, mm	Catalogue number	Price, EUR
	A, mm	B, mm					
15	12.7	12.7	4.8	1.5	7.8	120-0105E	40
25	19.1	25.4	6.1	2.0	13.0	120-0110E	60
25	25.4	25.4	14	2.5	13.0	120-0202E	60
30	25.4	25.4	8.5	2.0	15.6	120-0201E	60
40	25.4	25.4	6.4	2.0	20.7	120-0203E	60
50	25.4	25.4	5.2	2.0	25.9	120-0204E	55
50	25.4	50.8	5.2	2.0	25.9	120-0205E	85
75	25.4	25.4	4.1	2.0	38.9	120-0209E	55
75	25.4	50.8	4.1	2.0	38.9	120-0210E	85
100	25.4	25.4	3.5	2.0	51.9	120-0214E	55
100	25.4	50.8	3.5	2.0	51.9	120-0215E	85
150	25.4	25.4	3.0	2.0	77.8	120-0219E	55
150	25.4	50.8	3.0	2.0	77.8	120-0220E	85
200	25.4	25.4	2.8	2.0	103.7	120-0224E	55
200	25.4	50.8	2.8	2.0	103.7	120-0225E	85
300	25.4	25.4	2.5	2.0	155.6	120-0229E	55
300	25.4	50.8	2.5	2.0	155.6	120-0230E	85
500	25.4	25.4	2.4	2.0	259.4	120-0234E	59
500	25.4	50.8	2.4	2.0	259.4	120-0235E	95
1000	25.4	25.4	2.3	2.0	518.7	120-0239E	59
1000	25.4	50.8	2.3	2.0	518.7	120-0240E	95
1500	25.4	25.4	2.2	2.0	778.1	120-0244E	59
1500	25.4	50.8	2.2	2.0	778.1	120-0245E	95

UV FS PLANO-CONVEX CYLINDRICAL LENSES

Focal length F, mm	Dimensions		Centre thickness CT, mm	Edge thickness ET, mm	Radius, mm	Catalogue number	Price, EUR
	A, mm	B, mm					
15	12.7	12.7	4.9	2.0	7.1	120-1104E	69
25	19.1	25.4	8.0	3.0	11.9	120-1105E	97
30	25.4	25.4	10.0	2.5	14.3	120-1201E	97
40	25.4	25.4	8.0	3.1	19.0	120-1203E	97
50	25.4	25.4	7.1	3.5	23.8	120-1204E	95
50	25.4	50.8	7.1	3.5	23.8	120-1205E	170
75	25.4	25.4	5.6	3.3	35.7	120-1209E	91
75	25.4	50.8	5.6	3.3	35.7	120-1210E	170
100	25.4	25.4	4.7	3.0	47.6	120-1214E	87
100	25.4	50.8	4.7	3.0	47.6	120-1215E	161
150	25.4	25.4	4.1	3.0	71.3	120-1219E	87
150	25.4	50.8	4.1	3.0	71.3	120-1220E	161
200	25.4	25.4	4.3	3.5	95.1	120-1224E	87
200	25.4	50.8	4.3	3.5	95.1	120-1225E	161
250	25.4	25.4	4.2	3.5	118.9	120-1226E	87
250	25.4	50.8	4.2	3.5	118.9	120-1227E	161
300	25.4	25.4	4.1	3.5	142.7	120-1229E	87
300	25.4	50.8	4.1	3.5	142.7	120-1230E	161
500	25.4	25.4	3.8	3.5	237.8	120-1234E	95
500	25.4	50.8	3.8	3.5	237.8	120-1235E	177
1000	25.4	25.4	2.5	2.3	475.5	120-1239E	95
1000	25.4	50.8	2.5	2.3	475.5	120-1240E	177
1500	25.4	25.4	2.2	2.0	713.3	120-1244E	95
1500	25.4	50.8	2.2	2.0	713.3	120-1245E	177

BK7 PLANO-CONCAVE CYLINDRICAL LENSES

Focal length F, mm	Dimensions		Centre thickness CT, mm	Edge thickness ET, mm	Radius, mm	Catalogue number	Price, EUR
	A, mm	B, mm					
-15	12.7	12.7	1.4	3.7	-7.8	122-0105E	40
-25	19.1	25.4	2.0	6.0	-13.0	122-0110E	60
-50	25.4	25.4	2.0	5.2	-25.9	122-0204E	55
-50	25.4	50.8	2.0	5.2	-25.9	122-0205E	85
-75	25.4	25.4	2.0	4.1	-38.9	122-0209E	55
-75	25.4	50.8	2.0	4.1	-38.9	122-0210E	85
-100	25.4	25.4	2.0	3.5	-51.9	122-0214E	55
-100	25.4	50.8	2.0	3.5	-51.9	122-0215E	85
-150	25.4	25.4	2.0	3.0	-77.8	122-0219E	55
-150	25.4	50.8	2.0	3.0	-77.8	122-0220E	85
-200	25.4	25.4	2.0	2.8	-103.7	122-0224E	55
-200	25.4	50.8	2.0	2.8	-103.7	122-0225E	85
-250	25.4	25.4	2.0	2.7	-129.7	122-0226E	55
-250	25.4	50.8	2.0	2.7	-129.7	122-0227E	85
-300	25.4	25.4	2.0	2.5	-155.6	122-0229E	55
-300	25.4	50.8	2.0	2.5	-155.6	122-0230E	85
-500	25.4	25.4	2.0	2.4	-259.4	122-0234E	59
-500	25.4	50.8	2.0	2.4	-259.4	122-0235E	95

UV FS PLANO-CONCAVE CYLINDRICAL LENSES

Focal length F, mm	Dimensions		Centre thickness CT, mm	Edge thickness ET, mm	Radius, mm	Catalogue number	Price, EUR
	A, mm	B, mm					
-15	12.7	12.7	2.0	4.9	-7.1	122-1104E	69
-25	19.1	25.4	3.0	8.0	-11.9	122-1105E	97
-30	25.4	25.4	2.5	10.0	-14.3	122-1201E	97
-50	25.4	25.4	3.5	7.1	-23.8	122-1204E	95
-50	25.4	50.8	3.5	7.1	-23.8	122-1205E	199
-75	25.4	25.4	3.3	5.6	-35.7	122-1209E	95
-75	25.4	50.8	3.3	5.6	-35.7	122-1210E	199
-100	25.4	25.4	3.0	4.7	-47.6	122-1214E	95
-100	25.4	50.8	3.0	4.7	-47.6	122-1215E	199
-150	25.4	25.4	3.0	4.1	-71.3	122-1219E	95
-150	25.4	50.8	3.0	4.1	-71.3	122-1220E	199
-200	25.4	25.4	3.8	4.6	-95.1	122-1224E	95
-200	25.4	50.8	3.8	4.6	-95.1	122-1225E	199
-300	25.4	25.4	3.5	4.1	-142.7	122-1229E	95
-300	25.4	50.8	3.5	4.1	-142.7	122-1230E	199
-500	25.4	25.4	3.5	3.8	-237.8	122-1234E	113
-500	25.4	50.8	3.5	3.8	-237.8	122-1235E	209

COATINGS

WINDOWS & FILTERS

MIRRORS

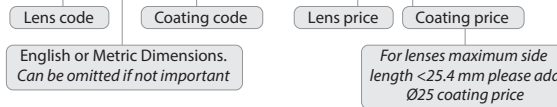
Ordering of Coated Lenses

Please choose relevant coating from anti-reflection coatings section (pages 1.5 - 1.6). The coating code and price should be added to the lens code and price.

Example:

BK7 pl/cx cylindrical lens, dimensions: 10x10 mm, F = 15 mm, coated AR/AR @ 400-700 nm, AOI=0°

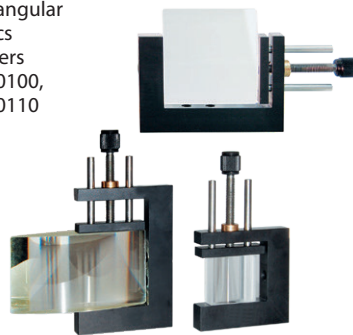
Code: **120-0105 E + ARB550**, Price: 40 + 56 EUR= 96 EUR/pc.



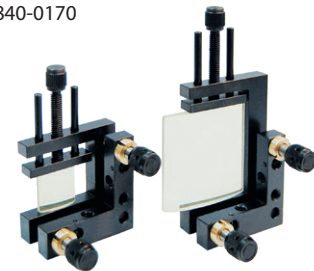
LENSES

HOUSING ACCESSORIES

Rectangular Optics Holders
830-0100,
830-0110



For applications where fine adjustment is required, use Prism Holders
840-0160, 840-0170



PRISMS

POLARIZING OPTICS

UV & IR OPTICS

LENS KITS



Lens kits contain different types (plano-convex, biconvex, plano-concave, biconcave) of Ø25.4 mm lenses with various focal lengths. Kits are packed into foam lined plastic the new plastic boxes for safe handling and storage.

Large lens kit consists of 40 lenses and small lens kit consists of 15 lenses made either of N-BK7 glass or UVFS. Kits are available uncoated, as well as BBAR coated or with AR coatings for particular laser wavelengths.

SPHERICAL N-BK7 LENS KITS



Small Lens Kit

SMALL KIT OF 15 PCS. N-BK7 lenses

Coating	Catalogue number	Price, EUR
uncoated	140-0215	310
BBAR @ 400 – 700 nm, R<0.9%	140-0215-AR400-700	990
BBAR @ 650 – 1100 nm, R<1.0%	140-0215-AR650-1100	1050
BBAR @ 1050 – 1700 nm, R<1.0%	140-0215-AR1050-1700	1150
AR @ 532 + 1064 nm, R<0.5%	140-0215-AR532+1064	770
AR @ 1064 nm, R<0.25%	140-0215-AR1064	700
AR @ 532 nm, R<0.25%	140-0215-AR532	700

Small BK7 Lens Kit

Type	Dia, mm	F, mm	Catalogue nr.
pl/cx	25.4	30	110-0205E
pl/cx	25.4	40	110-0207E
pl/cx	25.4	50	110-0209E
pl/cx	25.4	60	110-0211E
pl/cx	25.4	75	110-0215E
pl/cx	25.4	100	110-0219E
pl/cx	25.4	150	110-0227E
pl/cx	25.4	200	110-0231E

Type	Dia, mm	F, mm	Catalogue nr.
pl/cx	25.4	500	110-0247E
pl/cx	25.4	1000	110-0259E
pl/cv	25.4	-40	112-0207E
pl/cv	25.4	-50	112-0209E
pl/cv	25.4	-75	112-0215E
pl/cv	25.4	-100	112-0219E
pl/cv	25.4	-150	112-0227E

Please refer to Nd:YAG Laser Line (see page 3.12) or Femtoline (see page 4.18) section for lens kits with AR coated lenses for particular laser applications.

LARGE KIT OF 40 PCS. N-BK7 lenses

Coating	Catalogue number	Price, EUR
uncoated	140-0240	780
BBAR @ 400 – 700 nm, R<0.9%	140-0240-AR400-700	1820
BBAR @ 650 – 1100 nm, R<1.0%	140-0240-AR650-1100	1930
BBAR @ 1050 – 1700 nm, R<1.0%	140-0240-AR1050-1700	2030
AR @ 532 + 1064 nm, R<0.5%	140-0240-AR532+1064	1750
AR @ 1064 nm, R<0.25%	140-0240-AR1064	1550
AR @ 532 nm, R<0.25%	140-0240-AR532	1550

Large BK7 Lens Kit

Type	Dia, mm	F, mm	Catalogue nr.
pl/cx	25.4	30	110-0205E
pl/cx	25.4	40	110-0207E
pl/cx	25.4	50	110-0209E
pl/cx	25.4	60	110-0211E
pl/cx	25.4	75	110-0215E
pl/cx	25.4	100	110-0219E
pl/cx	25.4	125	110-0223E
pl/cx	25.4	150	110-0227E
pl/cx	25.4	200	110-0231E
pl/cx	25.4	250	110-0235E
pl/cx	25.4	300	110-0239E
pl/cx	25.4	350	110-0241E
pl/cx	25.4	400	110-0243E
pl/cx	25.4	500	110-0247E

Type	Dia, mm	F, mm	Catalogue nr.
pl/cx	25.4	700	110-0251E
pl/cx	25.4	1000	110-0259E
bi/cx	25.4	25	111-0204E
bi/cx	25.4	30	111-0206E
bi/cx	25.4	40	111-0208E
bi/cx	25.4	50	111-0210E
bi/cx	25.4	60	111-0214E
bi/cx	25.4	75	111-0216E
bi/cx	25.4	100	111-0218E
bi/cx	25.4	150	111-0222E
bi/cx	25.4	200	111-0226E
bi/cx	25.4	250	111-0228E
bi/cx	25.4	500	111-0234E

Type	Dia, mm	F, mm	Catalogue nr.
bi/cx	25.4	1000	111-0250E
pl/cv	25.4	-40	112-0207E
pl/cv	25.4	-50	112-0209E
pl/cv	25.4	-75	112-0215E
pl/cv	25.4	-100	112-0219E
pl/cv	25.4	-150	112-0227E
pl/cv	25.4	-200	112-0231E
bi/cv	25.4	-25	114-0204E
bi/cv	25.4	-50	114-0208E
bi/cv	25.4	-75	114-0212E
bi/cv	25.4	-100	114-0214E
bi/cv	25.4	-150	114-0220E
bi/cv	25.4	-200	114-0224E

SPHERICAL UV FS LENS KITS



Large Lens Kit

SMALL KIT OF 15 PCS. UV FS lenses

Coating	Catalogue number	Price, EUR
uncoated	140-1215	930
BBAR @ 210 – 400 nm, R<2%	140-1215-AR210-400	1830
BBAR @ 350 – 900 nm, R<1.5%	140-1215-AR350-900	1660
BBAR @ 760 – 840 nm, R<0.4%	140-1215-AR760-840	1530
BBAR @ 700 – 900 nm, R<0.8%	140-1215-AR700-900	1610
BBAR @ 650 – 1100 nm, R<1%	140-1215-AR650-1100	1670
AR @ 532 + 1064 nm, R<0.5%	140-1215-AR532+1064	1390
AR @ 1064 nm, R<0.25%	140-1215-AR1064	1320
AR @ 532 nm, R<0.25%	140-1215-AR532	1320
AR @ 355 nm, R<0.25%	140-1215-AR355	1350
AR @ 266 nm, R<0.4%	140-1215-AR266	1380
AR @ 1030 nm, R<0.25%	140-1215-AR1030	1320
AR @ 515 nm, R<0.25%	140-1215-AR515	1320
AR @ 343 nm, R<0.3%	140-1215-AR343	1350
AR @ 258 nm, R<0.4%	140-1215-AR258	1380

Small UV FS Lens Kit

Type	Dia, mm	F, mm	Catalogue nr.
pl/cx	25.4	30	110-1203E
pl/cx	25.4	50	110-1205E
pl/cx	25.4	75	110-1209E
pl/cx	25.4	100	110-1211E
pl/cx	25.4	125	110-1216E
pl/cx	25.4	150	110-1217E
pl/cx	25.4	200	110-1219E
pl/cx	25.4	300	110-1223E

Type	Dia, mm	F, mm	Catalogue nr.
pl/cx	25.4	500	110-1233E
pl/cx	25.4	1000	110-1245E
pl/cv	25.4	-50	112-1205E
pl/cv	25.4	-75	112-1209E
pl/cv	25.4	-100	112-1211E
pl/cv	25.4	-125	112-1215E
pl/cv	25.4	-150	112-1217E

RELATED PRODUCTS

Tweezers/Forceps
for Optical
Components 260-1050
See page A.4



LARGE KIT OF 40 PCS. UV FS lenses

Coating	Catalogue number	Price, EUR
uncoated	140-1240	2160
BBAR @ 210 – 400 nm, R<2%	140-1240-AR210-400	3490
BBAR @ 350 – 900 nm, R<1.5%	140-1240-AR350-900	3290
BBAR @ 760 – 840 nm, R<0.4%	140-1240-AR760-840	3040
BBAR @ 700 – 900 nm, R<0.8%	140-1240-AR700-900	3210
BBAR @ 650 – 1100 nm, R<1%	140-1240-AR650-1100	3310
AR @ 532 + 1064 nm, R<0.5%	140-1240-AR532+1064	3130
AR @ 1064 nm, R<0.25%	140-1240-AR1064	2930
AR @ 532 nm, R<0.25%	140-1240-AR532	2930
AR @ 355 nm, R<0.25%	140-1240-AR355	3030
AR @ 266 nm, R<0.4%	140-1240-AR266	3130
AR @ 1030 nm, R<0.25%	140-1240-AR1030	2930
AR @ 515 nm, R<0.25%	140-1240-AR515	2930
AR @ 343 nm, R<0.3%	140-1240-AR343	3030
AR @ 258 nm, R<0.4%	140-1240-AR258	3130

Large UV FS Lens Kit

Type	Dia, mm	F, mm	Catalogue nr.
pl/cx	25.4	30	110-1203E
pl/cx	25.4	50	110-1205E
pl/cx	25.4	75	110-1209E
pl/cx	25.4	80	110-1210E
pl/cx	25.4	100	110-1211E
pl/cx	25.4	125	110-1216E
pl/cx	25.4	150	110-1217E
pl/cx	25.4	200	110-1219E
pl/cx	25.4	250	110-1221E

Type	Dia, mm	F, mm	Catalogue nr.
pl/cx	25.4	300	110-1223E
pl/cx	25.4	350	110-1225E
pl/cx	25.4	400	110-1227E
pl/cx	25.4	500	110-1233E
pl/cx	25.4	600	110-1235E
pl/cx	25.4	750	110-1239E
pl/cx	25.4	1000	110-1245E
bi/cx	25.4	25	111-1204E
bi/cx	25.4	40	111-1207E

COATINGS

WINDOWS & FILTERS

MIRRORS

LENSES

PRISMS

POLARIZING OPTICS

UV & IR OPTICS

Type	Dia, mm	F, mm	Catalogue nr.
bi/cx	25.4	50	111-1210E
bi/cx	25.4	75	111-1214E
bi/cx	25.4	100	111-1218E
bi/cx	25.4	150	111-1222E
bi/cx	25.4	200	111-1226E
bi/cx	25.4	250	111-1230E
bi/cx	25.4	300	111-1234E
bi/cx	25.4	400	111-1238E
bi/cx	25.4	500	111-1240E
bi/cx	25.4	1000	111-1260E
pl/cv	25.4	-50	112-1205E

Type	Dia, mm	F, mm	Catalogue nr.
pl/cv	25.4	-75	112-1209E
pl/cv	25.4	-100	112-1211E
pl/cv	25.4	-150	112-1217E
pl/cv	25.4	-200	112-1219E
pl/cv	25.4	-300	112-1223E
bi/cv	25.4	-25	114-1204E
bi/cv	25.4	-50	114-1208E
bi/cv	25.4	-75	114-1212E
bi/cv	25.4	-100	114-1216E
bi/cv	25.4	-150	114-1220E
bi/cv	25.4	-200	114-1224E

CYLINDRICAL N-BK7 LENS KIT

CYLINDRICAL LENS KIT OF 12 PCS. N-BK7 lenses

Coating	Catalogue number	Price, EUR
uncoated	140-0212	950
BBAR @ 400 – 700 nm, R<0.9%	140-0212-AR400-700	1750
BBAR @ 650 – 1100 nm, R<0.7%	140-0212-AR650-1100	1815
BBAR @ 1050 – 1700 nm, R<0.7%	140-0212-AR1050-1700	2020
AR @ 1064 nm, R<0.25%	140-0212-AR1064	1550
AR @ 532 + 1064 nm, R<0.5%	140-0212-ARD1064	1620

Cylindrical N-BK7 lens kit

Type	Size, mm	F, mm	Catalogue nr.
pl/cx	25.4 x 50.8	50	120-0205E
pl/cx	25.4 x 50.8	75	120-0210E
pl/cx	25.4 x 50.8	100	120-0215E
pl/cx	25.4 x 50.8	150	120-0220E
pl/cx	25.4 x 50.8	200	120-0225E
pl/cx	25.4 x 50.8	300	120-0230E
pl/cx	25.4 x 50.8	500	120-0235E

Type	Size, mm	F, mm	Catalogue nr.
pl/cx	25.4 x 50.8	1000	120-0240E
pl/cv	25.4 x 50.8	-50	122-0205E
pl/cv	25.4 x 50.8	-75	122-0210E
pl/cv	25.4 x 50.8	-100	122-0215E
pl/cv	25.4 x 50.8	-150	122-0220E

CYLINDRICAL UV FS LENS KIT

CYLINDRICAL LENS KIT OF 12 PCS. UV FS lenses

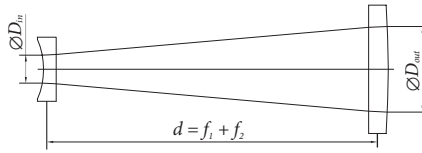
Coating	Catalogue number	Price, EUR
uncoated	140-1212	1700
BBAR @ 210 – 400 nm, R<2%	140-0212-ARB300	2720
BBAR @ 350 – 900 nm, R<1.5%	140-0212-ARB625	2630
BBAR @ 700 – 900 nm, R<0.5%	140-0212-ARB800	2500
BBAR @ 700 – 900 nm, R<0.1%	140-0212-ARB800HT	3400
BBAR @ 650 – 1100 nm, R<0.7%	140-0212-ARB825	2550
BBAR @ 900 – 1100 nm, R<0.1%	140-0212-ARB1000HT	3400
AR @ 515 + 1030 nm, R<0.5%	140-0212-ARD1030	2370
AR @ 515 + 1030 nm, R<0.1%	140-0212-ARD1030HT	3300
AR @ 1000 – 1060 nm, R<0.3%	140-0212-AR1030	2300

Cylindrical UV FS lens kit

Type	Size, mm	F, mm	Catalogue nr.
pl/cx	25.4 x 50.8	50	120-1205E
pl/cx	25.4 x 50.8	75	120-1210E
pl/cx	25.4 x 50.8	100	120-1215E
pl/cx	25.4 x 50.8	150	120-1220E
pl/cx	25.4 x 50.8	200	120-1225E
pl/cx	25.4 x 50.8	300	120-1230E

Type	Size, mm	F, mm	Catalogue nr.
pl/cx	25.4 x 50.8	500	120-1235E
pl/cx	25.4 x 50.8	1000	120-1240E
pl/cv	25.4 x 50.8	-50	122-1205E
pl/cv	25.4 x 50.8	-75	122-1210E
pl/cv	25.4 x 50.8	-100	122-1215E
pl/cv	25.4 x 50.8	-150	122-1220E

SIMPLE TELESCOPE KIT



The distance from the second lens to the focal point of the combined lenses is called the back focal length (BFL).

$$BFL = \frac{f_2 \cdot (d - f_1)}{d - (f_1 + f_2)}$$

If the separation distance is equal to the sum of the focal lengths ($d = f_1 + f_2$), the combined focal length and BFL are infinite. This corresponds to a pair of lenses that transform a parallel (collimated) beam into another collimated beam. This type of system is called

an afocal system, since it produces no net convergence or divergence of the beam. Two lenses at this separation form the simplest type of optical telescope. Although the system does not alter the divergence of a collimated beam, it does alter the width of the beam. The magnification of such a telescope is given by

$$M = -\frac{f_2}{f_1} = \frac{D_{out} \text{ (exit diameter)}}{D_{in} \text{ (input diameter)}}$$

which is the ratio of the input beam width to the output beam width. Note the sign convention: a telescope with two convex lenses ($f_1 > 0, f_2 > 0$) produces a negative magnification, indicating an inverted image. A concave plus a convex lens ($f_1 < 0 < f_2$) produces a positive magnification and the image is upright.

Simple lenses are subject to optical aberrations. In many cases these aberrations can be compensated for to a great extent by using a combination of simple lenses with complementary aberrations. A compound lens is a collection of simple lenses of different shapes and made of materials of different refractive indices, arranged one after the other with a common axis.

If two thin lenses are separated in air by some distance d (where d is smaller than the focal length of the first lens), the focal length for the combined system is given by

$$\frac{1}{f} = \frac{1}{f_1} + \frac{1}{f_2} - \frac{d}{f_1 \cdot f_2}$$

Coating	Material	Catalogue number	Price, EUR
Uncoated	BK7	140-0008	771
1064 nm, R<0.2%	BK7	141-0008	1075
532 nm + 1064 nm, R<0.5%	BK7	142-0008	1110
400 – 700 nm, R<0.9%	BK7	147-0008	1260
Uncoated	UV FS	140-1008	1170
266 nm, R<0.4%	UV FS	144-1008	1470
266 nm + 355 nm, R<0.6%	UV FS	149-1008	1480
210 – 400 nm, R<1.5%	UV FS	146-1008	1680
355 nm, R<0.25%	UV FS	143-1008	1465
532 nm + 1064 nm, R<0.5%	UV FS	141-1008	1485
350 – 900 nm, R<1.5%	UV FS	145-1008	1685
650 – 950 nm, R<1%	UV FS	148-1008	1645

Any other antireflection coating wavelength region is available on request.

Each kit includes 8 lenses, Aluminium Optical Rail 810-0005-02, two Aluminium Rail Carriers 810-0007-06, Self Centering Lens Mounts 830-0010 and 830-0020, two Rod Holders 820-0050-02 and two Rods 820-0010-02. Net weight: 1.4 kg

SIMPLE TELESCOPE KIT

Material: BK7		Material: UV FS		Focal length f_1 , mm	Focal length f_2 , mm	Distance between lenses $d=f_1+f_2$, mm *	Magnification, M
Lens 1	Lens 2	Lens 1	Lens 2				
BK7 bi/cv Ø12.7 mm	BK7 pl/cx Ø50.8 mm	UV FS bi/cv Ø12.7 mm	UV FS pl/cx Ø50.8 mm	-12.7	+75	62	5.9
114-0104	110-0502	114-1104	110-1505		+100	87	7.7
	110-0505		110-1509		+150	137	11.8
	110-0507		110-1511		+200	187	15.7
	110-0509		110-1515		+250	237	19.7
	110-0511		110-1517				
BK7 bi/cv Ø25.4 mm	BK7 pl/cx Ø50.8 mm	UV FS bi/cv Ø25.4 mm	UV FS pl/cx Ø50.8 mm	-25	+75	50	3
114-0204	110-0502	114-1204	110-1505		+100	75	4
	110-0505		110-1509		+150	125	6
	110-0507		110-1511		+200	175	8
	110-0509		110-1515		+250	225	10
	110-0511		110-1517				
BK7 pl/cv Ø25.4 mm	BK7 pl/cx Ø50.8 mm	UV FS pl/cv Ø25.4 mm	UV FS pl/cx Ø50.8 mm	-50	+75	25	1.5
112-0209	110-0502	112-1205	110-1505		+100	50	2
	110-0505		110-1509		+150	100	3
	110-0507		110-1511		+200	150	4
	110-0509		110-1515		+250	200	5
	110-0511		110-1517				

* Note that distance between lenses d is the distance between focal planes of the lenses and is given theoretically (the thickness of lenses is not included into calculation). It, also, depends on wavelength. The distance should be adjusted ± 10 mm in each particular case.