

## BICONCAVE LENSES

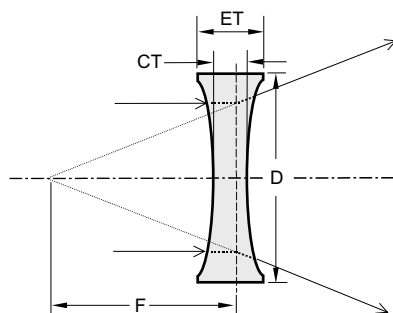
- Have negative focal lengths, diverge collimated incident light
- Form only virtual images which are seen through the lens
- Minimise spherical aberration, coma and distortion at unit conjugate ratio

These lenses are symmetrical, have 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.

*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.*

*Most of the lenses are available from stock and can be shipped the same day an order is placed.*



## SPECIFICATIONS

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

## BK7 Biconcave Lenses

Catalogue number BK7	Diameter D, mm		Focal length F, mm	Centre thickness CT, mm	Edge thickness ET, mm	Price, EUR
	Metric	English				
114-0104	12.5	12.7	-12.7	3.2	5.0	15
114-0106	12.5	12.7	-25.0	2.2	3.0	15
114-0108	12.5	12.7	-40.0	2.4	3.0	15
114-0110	12.5	12.7	-50.0	2.6	3.0	15
114-0112	12.5	12.7	-60.0	2.6	3.0	15
114-0114	12.5	12.7	-75.0	2.7	3.0	15
114-0118	12.5	12.7	-100.0	2.8	3.0	15
114-0120	12.5	12.7	-125.0	1.7	2.0	14
114-0124	12.5	12.7	-150.0	1.8	2.0	14
114-0128	12.5	12.7	-200.0	1.8	2.0	14
114-0132	12.5	12.7	-250.0	1.8	2.0	14
114-0204	25.0	25.4	-25.0	4.8	8.3	19
114-0206	25.0	25.4	-40.0	2.7	6.1	19
114-0208	25.0	25.4	-50.0	4.4	6.0	19
114-0210	25.0	25.4	-60.0	2.6	5.0	19
114-0212	25.0	25.4	-75.0	3.7	4.7	18
114-0214	25.0	25.4	-100.0	3.2	4.0	18
114-0218	25.0	25.4	-125.0	3.1	4.0	18
114-0220	25.0	25.4	-150.0	3.0	4.0	18
114-0224	25.0	25.4	-200.0	2.8	3.5	18
114-0228	25.0	25.4	-250.0	2.9	3.5	18
114-0234	25.0	25.4	-400.0	3.2	3.5	18
114-0238	25.0	25.4	-500.0	3.2	3.5	18

Please add code M to the catalogue number for metric dimensions and code E for English.

## HOUSING ACCESSORIES

- Variable Lens Holder 830-0040  
See page 3.45 for more information.



## UV FS & FS Biconcave Lenses

Catalogue number		Diameter D, mm		Focal length	Centre thickness	Edge thickness	Price, EUR UV FS / FS
UV FS	FS	Metric	English	F, mm	CT, mm	ET, mm	
114-1104	114-3104	12.5	12.7	-12.5	3.7	5.8	49 / 47
114-1108	114-3108	12.5	12.7	-25.0	2.3	3.2	49 / 47
114-1110	114-3110	12.5	12.7	-30.0	1.3	2.5	49 / 47
114-1114	114-3114	12.5	12.7	-50.0	2.6	3.0	49 / 47
114-1118	114-3118	12.5	12.7	-75.0	2.7	3.0	49 / 47
114-1122	114-3122	12.5	12.7	-100.0	2.8	3.0	47 / 45
114-1204	114-3204	25.0	25.4	-25.0	5.3	9.5	71 / 69
114-1208	114-3208	25.0	25.4	-50.0	4.2	6.0	71 / 69
114-1212	114-3212	25.0	25.4	-75.0	3.8	5.0	71 / 69
114-1216	114-3216	25.0	25.4	-100.0	3.6	4.5	71 / 69
114-1220	114-3220	25.0	25.4	-150.0	3.9	4.5	71 / 69
114-1224	114-3224	25.0	25.4	-200.0	3.0	3.9	70 / 68

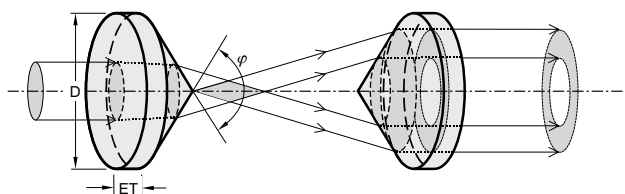
Please add code M to the catalogue number for metric dimensions and code E for English.  
Please contact us for other size, focus or precision requirements.

## CONICAL LENSES (AXICONS)

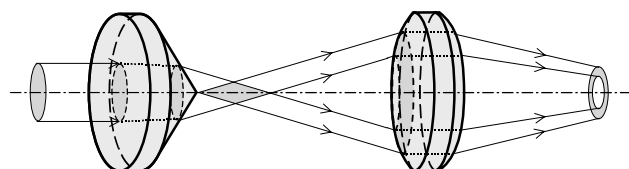
- Can be made from most optical materials

Most of the lenses are available from stock and can be shipped the same day an order is placed.

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



An axicon with a spherical lens produces an annular focus.



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

### SPECIFICATIONS

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

### HOUSING ACCESSORIES

- Self-Centring Lens Mounts  
830-0010  
See page 3.42 for more information.



Catalogue number		Diameter D, mm	Apex angle φ, deg	Price, EUR BK7 / FS
BK7	FS			
130-0240	130-3240	25.4	140	160 / 283
130-0260	130-3260	25.4	160	160 / 283
130-0265	130-3265	25.4	165	160 / 283
130-0270	130-3270	25.4	170	160 / 283
130-0275	130-3275	25.4	175	160 / 283
130-0278	130-3278	25.4	178	160 / 283
130-0360	130-3360	30.0	160	197 / 350
130-0365	130-3365	30.0	165	197 / 350
130-0370	130-3370	30.0	170	197 / 350

Please contact us for other size or precision requirements.