

# Lenses

(UV FS, FS, BK7, CaF<sub>2</sub>)

## PLANO-CONVEX LENSES

- 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.

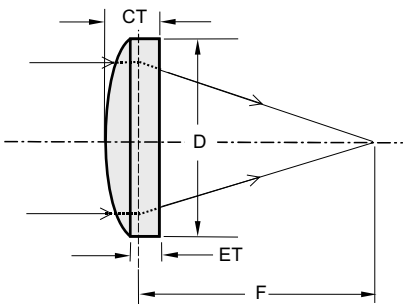
Upon customer's request, lenses may be anti-reflection coated.  
For a required coating, please refer to the Coatings section.

Standard lenses have a range of focal lengths – from 25 mm to 10000 mm, and diameters – from 12.5 mm to 50.8 mm.

Call us for other size, focus or precision requirements.

*If you don't see exactly the lens that you need, please contact us. 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, CaF <sub>2</sub> |     |           |
| 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 @ 546 nm                     |     |           |
| Paraxial focal length | BK7                              | ±2% | @ 546 nm  |
|                       | FS, UV FS                        | ±2% | @ 355 nm  |
|                       | CaF <sub>2</sub>                 | ±2% | @ 2940 nm |

## BK7 Plano-Convex Lenses

| Catalogue number<br>BK7 | Diameter D, mm |         | Focal length<br>F, mm | Centre thickness<br>CT, mm | Edge thickness<br>ET, mm | Price,<br>EUR |
|-------------------------|----------------|---------|-----------------------|----------------------------|--------------------------|---------------|
|                         | Metric         | English |                       |                            |                          |               |
| 110-0105                | 12.5           | 12.7    | 25.0                  | 4.0                        | 2.7                      | 15            |
| 110-0107                | 12.5           | 12.7    | 40.0                  | 3.0                        | 2.3                      | 15            |
| 110-0109                | 12.5           | 12.7    | 50.0                  | 3.0                        | 2.4                      | 15            |
| 110-0111                | 12.5           | 12.7    | 60.0                  | 3.0                        | 2.5                      | 15            |
| 110-0115                | 12.5           | 12.7    | 75.0                  | 3.0                        | 2.6                      | 15            |
| 110-0117                | 12.5           | 12.7    | 100.0                 | 3.0                        | 2.7                      | 15            |
| 110-0121                | 12.5           | 12.7    | 150.0                 | 3.0                        | 2.8                      | 15            |
| 110-0123                | 12.5           | 12.7    | 200.0                 | 3.0                        | 2.8                      | 15            |
| 110-0125                | 12.5           | 12.7    | 250.0                 | 3.0                        | 2.9                      | 15            |
| 110-0129                | 12.5           | 12.7    | 500.0                 | 2.1                        | 2.0                      | 15            |
| 110-0135                | 12.5           | 12.7    | 1000.0                | 2.1                        | 2.0                      | 15            |
| 110-0145                | 12.5           | 12.7    | 1500.0                | 2.1                        | 2.1                      | 15            |

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

| Catalogue number<br>BK7 | Diameter D, mm |         | Focal length | Centre thickness | Edge thickness | Price,<br>EUR |
|-------------------------|----------------|---------|--------------|------------------|----------------|---------------|
|                         | Metric         | English | F, mm        | CT, mm           | ET, mm         |               |
| 110-0205                | 25.0           | 25.4    | 30.0         | 8.5              | 2.3            | 25            |
| 110-0207                | 25.0           | 25.4    | 40.0         | 6.1              | 2.0            | 20            |
| 110-0209                | 25.0           | 25.4    | 50.0         | 5.0              | 2.0            | 19            |
| 110-0211                | 25.0           | 25.4    | 60.0         | 4.4              | 2.0            | 19            |
| 110-0215                | 25.0           | 25.4    | 75.0         | 4.0              | 2.0            | 19            |
| 110-0219                | 25.0           | 25.4    | 100.0        | 3.5              | 2.0            | 19            |
| 110-0223                | 25.0           | 25.4    | 125.0        | 3.2              | 2.0            | 19            |
| 110-0227                | 25.0           | 25.4    | 150.0        | 3.0              | 2.0            | 19            |
| 110-0231                | 25.0           | 25.4    | 200.0        | 3.0              | 2.2            | 18            |
| 110-0235                | 25.0           | 25.4    | 250.0        | 3.0              | 2.4            | 18            |
| 110-0239                | 25.0           | 25.4    | 300.0        | 3.0              | 2.5            | 18            |
| 110-0241                | 25.0           | 25.4    | 350.0        | 3.0              | 2.5            | 18            |
| 110-0243                | 25.0           | 25.4    | 400.0        | 3.0              | 2.5            | 18            |
| 110-0245                | 25.0           | 25.4    | 450.0        | 3.0              | 2.7            | 18            |
| 110-0247                | 25.0           | 25.4    | 500.0        | 3.0              | 2.7            | 18            |
| 110-0251                | 25.0           | 25.4    | 700.0        | 3.0              | 2.8            | 18            |
| 110-0255                | 25.0           | 25.4    | 800.0        | 3.0              | 2.8            | 18            |
| 110-0259                | 25.0           | 25.4    | 1000.0       | 3.0              | 2.8            | 18            |
| 110-0263                | 25.0           | 25.4    | 1200.0       | 3.0              | 2.9            | 18            |
| 110-0265                | 25.0           | 25.4    | 1300.0       | 3.0              | 2.9            | 18            |
| 110-0267                | 25.0           | 25.4    | 1500.0       | 3.0              | 2.9            | 18            |
| 110-0271                | 25.0           | 25.4    | 2000.0       | 3.0              | 2.9            | 18            |
| 110-0275                | 25.0           | 25.4    | 2500.0       | 3.0              | 2.9            | 18            |
| 110-0281                | 25.0           | 25.4    | 3000.0       | 3.0              | 2.9            | 18            |
| 110-0285                | 25.0           | 25.4    | 4000.0       | 3.0              | 3.0            | 18            |
| 110-0289                | 25.0           | 25.4    | 5000.0       | 3.0              | 3.0            | 18            |
| 110-0295                | 25.0           | 25.4    | 10000.0      | 3.0              | 3.0            | 18            |
| 110-0405                | 40.0           | 38.1    | 50.0         | 12.0             | 3.0            | 37            |
| 110-0407                | 40.0           | 38.1    | 75.0         | 7.3              | 2.5            | 32            |
| 110-0409                | 40.0           | 38.1    | 100.0        | 6.5              | 2.5            | 29            |
| 110-0411                | 40.0           | 38.1    | 150.0        | 5.1              | 2.5            | 29            |
| 110-0415                | 40.0           | 38.1    | 200.0        | 4.3              | 2.5            | 29            |
| 110-0417                | 40.0           | 38.1    | 250.0        | 4.0              | 2.5            | 29            |
| 110-0419                | 40.0           | 38.1    | 300.0        | 4.0              | 2.7            | 29            |
| 110-0423                | 40.0           | 38.1    | 400.0        | 4.0              | 3.1            | 29            |
| 110-0427                | 40.0           | 38.1    | 500.0        | 4.0              | 3.4            | 29            |
| 110-0435                | 40.0           | 38.1    | 700.0        | 4.0              | 3.5            | 28            |
| 110-0445                | 40.0           | 38.1    | 1000.0       | 4.0              | 3.6            | 28            |
| 110-0455                | 40.0           | 38.1    | 5000.0       | 4.0              | 3.8            | 28            |
| 110-0505                | 50.0           | 50.8    | 100.0        | 10.4             | 3.0            | 49            |
| 110-0509                | 50.0           | 50.8    | 200.0        | 6.1              | 3.0            | 45            |
| 110-0511                | 50.0           | 50.8    | 250.0        | 5.4              | 3.0            | 45            |
| 110-0515                | 50.0           | 50.8    | 300.0        | 5.0              | 3.0            | 45            |
| 110-0519                | 50.0           | 50.8    | 350.0        | 4.7              | 3.0            | 45            |
| 110-0523                | 50.0           | 50.8    | 400.0        | 5.5              | 4.0            | 45            |
| 110-0525                | 50.0           | 50.8    | 500.0        | 5.2              | 4.0            | 45            |
| 110-0527                | 50.0           | 50.8    | 600.0        | 5.0              | 4.0            | 45            |
| 110-0531                | 50.0           | 50.8    | 800.0        | 5.0              | 4.2            | 45            |
| 110-0535                | 50.0           | 50.8    | 1000.0       | 5.0              | 4.4            | 45            |
| 110-0545                | 50.0           | 50.8    | 2000.0       | 5.0              | 4.7            | 45            |
| 110-0555                | 50.0           | 50.8    | 5000.0       | 5.0              | 4.9            | 45            |
| 110-0565                | 50.0           | 50.8    | 10000.0      | 5.0              | 4.9            | 45            |

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

COATINGS

MIRRORS

LENSES

WINDOWS &amp; FILTERS

PRISMS

POLARISING OPTICS

UV &amp; IR OPTICS

## FS & UV FS Plano-Convex Lenses

| Catalogue number |          | Diameter D, mm |         | Focal length | Centre thickness | Edge thickness | Price, EUR |
|------------------|----------|----------------|---------|--------------|------------------|----------------|------------|
| UV FS            | FS       | Metric         | English | F, mm        | CT, mm           | ET, mm         | UV FS / FS |
| 110-1105         | 110-3105 | 12.5           | 12.7    | 25.0         | 4.0              | 2.2            | 48 / 39    |
| 110-1109         | 110-3109 | 12.5           | 12.7    | 50.0         | 3.0              | 2.2            | 48 / 39    |
| 110-1111         | 110-3111 | 12.5           | 12.7    | 75.0         | 3.0              | 2.4            | 48 / 39    |
| 110-1115         | 110-3115 | 12.5           | 12.7    | 100.0        | 3.0              | 2.5            | 48 / 39    |
| 110-1119         | 110-3119 | 12.5           | 12.7    | 150.0        | 3.0              | 2.7            | 47 / 39    |
| 110-1123         | 110-3123 | 12.5           | 12.7    | 200.0        | 3.0              | 2.8            | 47 / 39    |
| 110-1127         | 110-3127 | 12.5           | 12.7    | 250.0        | 3.0              | 2.8            | 47 / 39    |
| 110-1203         | 110-3203 | 25.0           | 25.4    | 30.0         | 6.0              | 2.3            | 70 / 66    |
| 110-1205         | 110-3205 | 25.0           | 25.4    | 50.0         | 6.0              | 2.3            | 70 / 66    |
| 110-1209         | 110-3209 | 25.0           | 25.4    | 75.0         | 4.5              | 2.2            | 70 / 66    |
| 110-1211         | 110-3211 | 25.0           | 25.4    | 100.0        | 4.0              | 2.3            | 70 / 66    |
| 110-1216         | 110-3216 | 25.0           | 25.4    | 125.0        | 4.0              | 2.4            | 70 / 66    |
| 110-1217         | 110-3217 | 25.0           | 25.4    | 150.0        | 4.0              | 2.8            | 70 / 66    |
| 110-1219         | 110-3219 | 25.0           | 25.4    | 200.0        | 4.0              | 3.2            | 70 / 66    |
| 110-1221         | 110-3221 | 25.0           | 25.4    | 250.0        | 4.0              | 3.3            | 70 / 66    |
| 110-1223         | 110-3223 | 25.0           | 25.4    | 300.0        | 4.0              | 3.4            | 70 / 66    |
| 110-1227         | 110-3227 | 25.0           | 25.4    | 400.0        | 4.0              | 3.6            | 70 / 66    |
| 110-1233         | 110-3233 | 25.0           | 25.4    | 500.0        | 4.0              | 3.6            | 70 / 66    |
| 110-1239         | 110-3239 | 25.0           | 25.4    | 750.0        | 4.0              | 3.7            | 70 / 66    |
| 110-1245         | 110-3245 | 25.0           | 25.4    | 1000.0       | 4.0              | 3.8            | 69 / 64    |
| 110-1255         | 110-3255 | 25.0           | 25.4    | 1500.0       | 4.0              | 3.9            | 69 / 64    |
| 110-1265         | 110-3265 | 25.0           | 25.4    | 2000.0       | 4.0              | 3.9            | 69 / 64    |
| 110-1275         | 110-3275 | 25.0           | 25.4    | 5000.0       | 4.0              | 4.0            | 69 / 64    |
| 110-1405         | 110-3405 | 40.0           | 38.1    | 50.0         | 13.5             | 2.5            | 113 / 109  |
| 110-1409         | 110-3409 | 40.0           | 38.1    | 75.0         | 8.6              | 2.5            | 113 / 109  |
| 110-1411         | 110-3411 | 40.0           | 38.1    | 100.0        | 6.9              | 2.5            | 113 / 109  |
| 110-1415         | 110-3415 | 40.0           | 38.1    | 150.0        | 5.4              | 2.5            | 113 / 109  |
| 110-1419         | 110-3419 | 40.0           | 38.1    | 200.0        | 4.0              | 2.8            | 113 / 109  |
| 110-1423         | 110-3423 | 40.0           | 38.1    | 250.0        | 4.0              | 2.2            | 113 / 109  |
| 110-1427         | 110-3427 | 40.0           | 38.1    | 300.0        | 4.0              | 2.5            | 111 / 109  |
| 110-1431         | 110-3431 | 40.0           | 38.1    | 400.0        | 4.0              | 2.9            | 111 / 109  |
| 110-1435         | 110-3435 | 40.0           | 38.1    | 500.0        | 4.0              | 3.1            | 111 / 107  |
| 110-1439         | 110-3439 | 40.0           | 38.1    | 600.0        | 4.0              | 3.2            | 111 / 107  |
| 110-1445         | 110-3445 | 40.0           | 38.1    | 1000.0       | 4.0              | 3.5            | 111 / 107  |
| 110-1455         | 110-3455 | 40.0           | 38.1    | 1500.0       | 4.0              | 3.7            | 111 / 107  |
| 110-1475         | 110-3475 | 40.0           | 38.1    | 5000.0       | 4.0              | 3.9            | 111 / 107  |
| 110-1505         | 110-3505 | 50.0           | 50.8    | 75.0         | 12.2             | 2.0            | 141 / 141  |
| 110-1509         | 110-3509 | 50.0           | 50.8    | 100.0        | 9.6              | 2.0            | 138 / 136  |
| 110-1511         | 110-3511 | 50.0           | 50.8    | 150.0        | 6.5              | 2.0            | 138 / 136  |
| 110-1515         | 110-3515 | 50.0           | 50.8    | 200.0        | 6.0              | 2.5            | 138 / 136  |
| 110-1519         | 110-3519 | 50.0           | 50.8    | 300.0        | 6.0              | 3.7            | 138 / 136  |
| 110-1523         | 110-3523 | 50.0           | 50.8    | 400.0        | 6.0              | 4.3            | 138 / 136  |
| 110-1527         | 110-3527 | 50.0           | 50.8    | 500.0        | 6.0              | 4.7            | 138 / 136  |
| 110-1531         | 110-3531 | 50.0           | 50.8    | 600.0        | 6.0              | 4.9            | 138 / 136  |
| 110-1535         | 110-3535 | 50.0           | 50.8    | 800.0        | 6.0              | 4.8            | 138 / 136  |
| 110-1545         | 110-3545 | 50.0           | 50.8    | 1000.0       | 6.0              | 5.3            | 138 / 136  |
| 110-1555         | 110-3555 | 50.0           | 50.8    | 2000.0       | 6.0              | 5.7            | 138 / 136  |
| 110-1565         | 110-3565 | 50.0           | 50.8    | 2500.0       | 6.0              | 5.7            | 138 / 136  |

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

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.

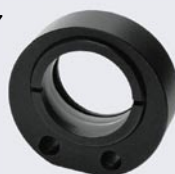
## CaF<sub>2</sub> Plano-Convex Lenses

| Catalogue number<br>CaF <sub>2</sub> | Diameter D, mm |         | Focal length<br>F, mm | Centre thickness<br>CT, mm | Edge thickness<br>ET, mm | Price,<br>EUR |
|--------------------------------------|----------------|---------|-----------------------|----------------------------|--------------------------|---------------|
|                                      | Metric         | English |                       |                            |                          |               |
| 110-5105                             | 12.5           | 12.7    | 25.0                  | 4.1                        | 2.0                      | 89            |
| 110-5109                             | 12.5           | 12.7    | 50.0                  | 3.0                        | 2.0                      | 76            |
| 110-5111                             | 12.5           | 12.7    | 75.0                  | 2.6                        | 2.0                      | 76            |
| 110-5115                             | 12.5           | 12.7    | 100.0                 | 2.5                        | 2.0                      | 68            |
| 110-5119                             | 12.5           | 12.7    | 150.0                 | 2.3                        | 2.0                      | 68            |
| 110-5123                             | 12.5           | 12.7    | 200.0                 | 2.2                        | 2.0                      | 68            |
| 110-5127                             | 12.5           | 12.7    | 250.0                 | 2.2                        | 2.0                      | 68            |
| 110-5135                             | 12.5           | 12.7    | 500.0                 | 2.1                        | 2.0                      | 68            |
| 110-5205                             | 25.0           | 25.4    | 50.0                  | 7.3                        | 3.0                      | 120           |
| 110-5209                             | 25.0           | 25.4    | 75.0                  | 5.7                        | 3.0                      | 115           |
| 110-5211                             | 25.0           | 25.4    | 100.0                 | 5.0                        | 3.0                      | 110           |
| 110-5217                             | 25.0           | 25.4    | 150.0                 | 4.3                        | 3.0                      | 95            |
| 110-5219                             | 25.0           | 25.4    | 200.0                 | 4.0                        | 3.0                      | 95            |
| 110-5221                             | 25.0           | 25.4    | 250.0                 | 3.8                        | 3.0                      | 95            |
| 110-5223                             | 25.0           | 25.4    | 500.0                 | 3.4                        | 3.0                      | 95            |
| 110-5227                             | 25.0           | 25.4    | 1000.0                | 3.2                        | 3.0                      | 95            |

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### HOUSING ACCESSORIES

- Optical Component Mounts 830-0037  
See page 5.46



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