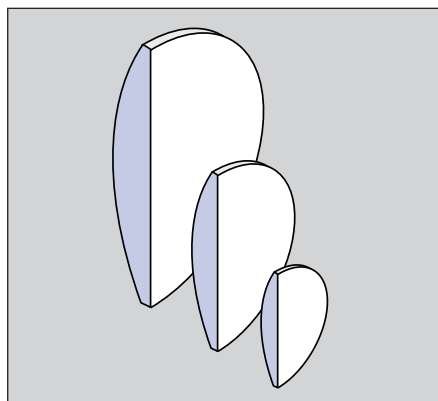


1.1 Quality convex lenses

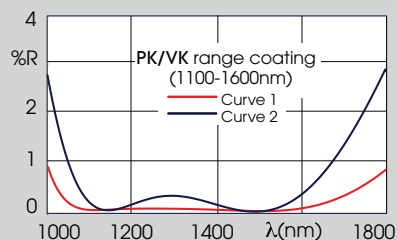
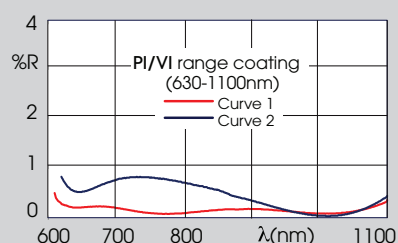
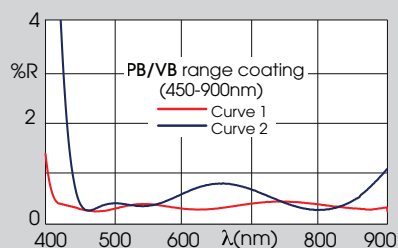


1 Convex lenses in crown glass are suitable for almost all singlet lens applications. Planoconvex lenses are normally specified for use with collimated light, but the biconvex form is better when the conjugates are roughly equal. Most lenses are also stocked in three different AR coatings covering from the visible out to telecoms IR wavelengths. Note special care is taken with the 630-1100nm coating to ensure good performance at 1064nm.



Coating specification

Two typical curves are shown for each coating. Curve 2 applies only to convex surfaces of short radius ($R < 1.33 \times \text{dia.}$) and Curve 1 to all other surfaces.



Catalogue No. Uncoated	Catalogue No. AR coated 450-900nm	Catalogue No. AR coated 630-1100nm	Catalogue No. AR coated 1100-1600nm	Focal length (mm)	Dia. (mm)	Back FL (mm)	Centre thick. (mm)	Glass type
Planoconvex								
<i>2.5mm diameter</i>								
025 PT 025	025 PX 025*	-	-	2.5	2.5	1.8	1.2	SF11
04 PT 025	04 PX 025*	-	-	4	2.5	3.4	1.0	SF11
<i>4mm diameter</i>								
04 PT 04	04 PX 04*	-	-	4	4	3.0	1.7	SF11
05 PQ 04	05 PB 04	-	-	5	4	3.7	1.9	BK7
06 PQ 04	06 PB 04	-	-	6.3	4	5.2	1.7	BK7†
10 PQ 04	10 PB 04	-	-	10	4	9.1	1.4	BK7†
<i>6.3mm diameter</i>								
06 PT 06	06 PX 06*	-	-	6.3	6.3	4.8	2.6	SF11
08 PQ 06	08 PB 06	08 PI 06	08 PK 06	8	6.3	6.1	3.0	BK7
10 PQ 06	10 PB 06	10 PI 06	10 PK 06	10	6.3	8.3	2.6	B270
12 PQ 06	12 PB 06	12 PI 06	12 PK 06	12.5	6.3	11.0	2.3	BK7
16 PQ 06	16 PB 06	16 PI 06	16 PK 06	16	6.3	14.6	2.1	BK7
20 PQ 06	20 PB 06	20 PI 06	20 PK 06	20	6.3	18.7	2.0	BK7
25 PQ 06	25 PB 06	25 PI 06	25 PK 06	25	6.3	23.7	1.9	B270
40 PQ 06	40 PB 06	40 PI 06	40 PK 06	40	6.3	38.9	1.7	BK7
63 PQ 06	63 PB 06	63 PI 06	63 PK 06	63	6.3	61.9	1.7	B270
<i>10mm diameter</i>								
12 PQ 10	12 PB 10	12 PI 10	12 PK 10	12.5	10	9.9	3.9	BK7
16 PQ 10	16 PB 10	16 PI 10	16 PK 10	16	10	13.9	3.2	BK7
20 PQ 10	20 PB 10	20 PI 10	20 PK 10	20	10	18.2	2.8	BK7
25 PQ 10	25 PB 10	25 PI 10	25 PK 10	25	10	23.4	2.5	BK7
32 PQ 10	32 PB 10	32 PI 10	32 PK 10	31.5	10	30.0	2.3	BK7
40 PQ 10	40 PB 10	40 PI 10	40 PK 10	40	10	38.6	2.1	BK7
50 PQ 10	50 PB 10	50 PI 10	50 PK 10	50	10	48.7	2.0	BK7†
63 PQ 10	63 PB 10	63 PI 10	63 PK 10	63	10	61.7	1.9	BK7
100 PQ 10	100 PB 10	100 PI 10	100 PK 10	100	10	98.9	1.7	BK7
<i>16mm diameter</i>								
20 PQ 16	20 PB 16	20 PI 16	20 PK 16	20	16	16.5	5.3	BK7
25 PQ 16	25 PB 16	25 PI 16	25 PK 16	25	16	22.2	4.3	BK7
32 PQ 16	32 PB 16	32 PI 16	32 PK 16	31.5	16	29.1	3.6	BK7
40 PQ 16	40 PB 16	40 PI 16	40 PK 16	40	16	38.0	3.1	BK7
50 PQ 16	50 PB 16	50 PI 16	50 PK 16	50	16	48.2	2.8	BK7
63 PQ 16	63 PB 16	63 PI 16	63 PK 16	63	16	61.4	2.5	BK7†
80 PQ 16	80 PB 16	80 PI 16	80 PK 16	80	16	78.5	2.3	BK7
100 PQ 16	100 PB 16	100 PI 16	100 PK 16	100	16	98.6	2.1	BK7†
160 PQ 16	160 PB 16	160 PI 16	160 PK 16	160	16	158.7	1.9	BK7
<i>25mm diameter</i>								
25 PT 25	25 PX 25*	-	-	25	25	21.6	6.0	SF11
32 PQ 25	32 PB 25	32 PI 25	32 PK 25	31.5	25	26.6	7.4	BK7
40 PQ 25	40 PB 25	40 PI 25	40 PK 25	40	25	36.2	5.7	BK7
50 PQ 25	50 PB 25	50 PI 25	50 PK 25	50	25	46.9	4.7	BK7
63 PQ 25	63 PB 25	63 PI 25	63 PK 25	63	25	60.4	4.0	BK7
80 PQ 25	80 PB 25	80 PI 25	80 PK 25	80	25	77.8	3.4	BK7
100 PQ 25	100 PB 25	100 PI 25	100 PK 25	100	25	98.0	3.0	BK7
125 PQ 25	125 PB 25	125 PI 25	125 PK 25	125	25	123.2	2.7	BK7
160 PQ 25	160 PB 25	160 PI 25	160 PK 25	160	25	158.4	2.5	BK7
200 PQ 25	200 PB 25	200 PI 25	200 PK 25	200	25	198.5	2.3	BK7
250 PQ 25	250 PB 25	250 PI 25	250 PK 25	250	25	248.6	2.1	BK7
315 PQ 25	315 PB 25	315 PI 25	315 PK 25	315	25	313.7	2.0	BK7
400 PQ 25	400 PB 25	400 PI 25	400 PK 25	400	25	398.8	1.9	BK7
500 PQ 25	500 PB 25	500 PI 25	500 PK 25	500	25	498.8	1.8	BK7
630 PQ 25	630 PB 25	630 PI 25	630 PK 25	630	25	628.9	1.7	BK7
800 PQ 25	800 PB 25	800 PI 25	800 PK 25	800	25	798.9	1.7	BK7
1000 PQ 25	1000 PB 25	1000 PI 25	1000 PK 25	1000	25	998.9	1.7	BK7
1600 PQ 25	1600 PB 25	1600 PI 25	1600 PK 25	1600	25	1598.9	1.6	BK7
2500 PQ 25	2500 PB 25	2500 PI 25	2500 PK 25	2500	25	2498.9	1.6	BK7

*SLAR coated for visible, very efficient for this material. see graph p.6 † Coated lenses B270

1.1 Quality convex lenses (continued)

Customise 

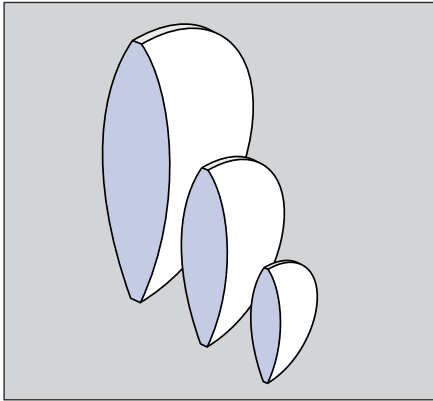
Specification	
Diameter	+0, -0.1mm (≤63mm) +0, -0.15mm (>63mm)
Focal length (at 587nm)	±0.2mm (<10mm) ±2% (10–1000mm) ±5% (>1000mm)
Scratch-dig	40-20 (see p.2)
Centration	0.1mm (FL≤40mm) 2.5mrad (FL>40mm)
Centre thickness	± 0.35mm
Edge thickness	
Lens dia. 2.5mm	0.75mm
Lens dia. 4mm	1.0mm
Lens dia. ≥6.3mm	1.5mm
Material data	see p.2

Sets at special price

Uncoated planoconvex lenses:
04 PQ 01 10mm set (9 lenses)
05 PQ 01 16mm set (9 lenses)
06 PQ 01 25mm set (19 lenses)
07 PQ 01 40mm set (9 lenses)

AR-coated planoconvex lenses (450-900nm):
01 PB 01 10mm set (9 lenses)
02 PB 01 16mm set (9 lenses)
03 PB 01 25mm set (19 lenses)
04 PB 01 40mm set (9 lenses)

Uncoated biconvex lenses:
01 VQ 00 10mm set (5 lenses)
02 VQ 00 16mm set (5 lenses)
03 VQ 00 25mm set (7 lenses)
04 VQ 00 40mm set (4 lenses)



Options available (see p.3)

- Mounting (lenses up to 50mm dia.)
- Special AR coating
- Edging to smaller diameters

See also:

Higher quality singlets [pp.6,14](#)
 Larger sizes [pp.9,16](#)
 UV lenses [p.7](#)
 Shorter FL and larger relative aperture [pp.7,14-16](#)
 Lower-cost lenses [pp.8,9](#)
 Aberration calculation [p.2](#)

Catalogue No. Uncoated	Catalogue No. AR coated 450-900nm	Catalogue No. AR coated 630-1100nm	Catalogue No. AR coated 1100-1600nm	Focal length (mm)	Dia. (mm)	Back FL (mm)	Centre thick. (mm)	Glass type
Planoconvex (continued)								
<i>40mm diameter</i>								
50 PQ 40	50 PB 40	–	–	50	40	42.7	11.0	BK7
63 PQ 40	63 PB 40	–	–	63	40	57.5	8.4	BK7
80 PQ 40	80 PB 40	–	–	80	40	75.6	6.7	BK7
100 PQ 40	100 PB 40	–	–	100	40	96.4	5.5	BK7†
125 PQ 40	125 PB 40	–	–	125	40	121.9	4.7	BK7
160 PQ 40	160 PB 40	–	–	160	40	157.4	4.0	BK7†
200 PQ 40	200 PB 40	–	–	200	40	197.7	3.5	BK7
250 PQ 40	250 PB 40	–	–	250	40	248.0	3.1	BK7
500 PQ 40	500 PB 40	–	–	500	40	498.5	2.3	BK7
<i>50mm diameter</i>								
63 PQ 50	63 PB 50	–	–	63	50	54.4	13.0	BK7
80 PQ 50	80 PB 50	–	–	80	50	73.5	9.9	BK7
100 PQ 50	100 PB 50	–	–	100	50	94.8	7.9	BK7
160 PQ 50	160 PB 50	–	–	160	50	154.4	5.4	B270
250 PQ 50	250 PB 50	–	–	250	50	247.4	3.9	B270
500 PQ 50	500 PB 50	–	–	500	50	498.2	2.7	B270
<i>63mm diameter</i>								
100 PQ 63	–	–	–	100	63	92.0	12.2	BK7
125 PQ 63	–	–	–	125	63	118.6	9.7	BK7
160 PQ 63	–	–	–	160	63	154.9	7.7	BK7
250 PQ 63	–	–	–	250	63	246.4	5.4	BK7
500 PQ 63	–	–	–	500	63	497.8	3.4	B270
1000 PQ 63	–	–	–	1000	63	998.4	2.5	BK7
<i>100mm diameter</i>								
160 PQ 100	–	–	–	160	100	147.9	18.3	BK7
250 PQ 100	–	–	–	250	100	242.4	11.6	BK7
500 PQ 100	–	–	–	500	100	498.8	6.4	BK7
Biconvex								
<i>6.3mm diameter</i>								
06 VQ 06	06 VB 06	06 VI 06	06 VK 06	6.3	6.3	5.1	3.3	BK7
08 VQ 06	08 VB 06	08 VI 06	08 VK 06	8	6.3	7.0	2.8	BK7
10 VQ 06	10 VB 06	10 VI 06	10 VK 06	10	6.3	9.1	2.5	BK7
<i>10mm diameter</i>								
10 VQ 10	10 VB 10	10 VI 10	10 VK 10	10	10	8.5	4.3	BK7
12 VQ 10	12 VB 10	12 VI 10	12 VK 10	12.5	10	11.2	3.6	BK7
16 VQ 10	16 VB 10	16 VI 10	16 VK 10	16	10	14.9	3.1	BK7
20 VQ 10	20 VB 10	20 VI 10	20 VK 10	20	10	19.1	2.8	BK7
25 VQ 10	25 VB 10	25 VI 10	25 VK 10	25	10	24.2	2.5	BK7
<i>16mm diameter</i>								
16 VQ 16	16 VB 16	16 VI 16	16 VK 16	16	16	13.9	6.0	BK7
20 VQ 16	20 VB 16	20 VI 16	20 VK 16	20	16	18.3	4.9	BK7
25 VQ 16	25 VB 16	25 VI 16	25 VK 16	25	16	23.6	4.1	BK7
32 VQ 16	32 VB 16	32 VI 16	32 VK 16	31.5	16	30.3	3.5	BK7
40 VQ 16	40 VB 16	40 VI 16	40 VK 16	40	16	38.1	3.1	BK7
<i>25mm diameter</i>								
25 VQ 25	25 VB 25	25 VI 25	25 VK 25	25	25	22.1	8.4	BK7
32 VQ 25	32 VB 25	32 VI 25	32 VK 25	31.5	25	29.2	6.7	BK7
40 VQ 25	40 VB 25	40 VI 25	40 VK 25	40	25	38.1	5.5	BK7
50 VQ 25	50 VB 25	50 VI 25	50 VK 25	50	25	48.5	4.6	BK7
63 VQ 25	63 VB 25	63 VI 25	63 VK 25	63	25	61.7	3.9	BK7
80 VQ 25	80 VB 25	80 VI 25	80 VK 25	80	25	78.9	3.4	BK7
100 VQ 25	100 VB 25	100 VI 25	100 VK 25	100	25	99	3.0	BK7
<i>40mm diameter</i>								
40 VQ 40	40 VB 40	40 VI 40	40 VK 40	40	40	35.6	12.5	BK7
50 VQ 40	50 VB 40	50 VI 40	50 VK 40	50	40	46.6	9.9	BK7
63 VQ 40	63 VB 40	63 VI 40	63 VK 40	63	40	60.3	7.9	BK7
100 VQ 40	100 VB 40	100 VI 40	100 VK 40	100	40	98.1	5.4	BK7

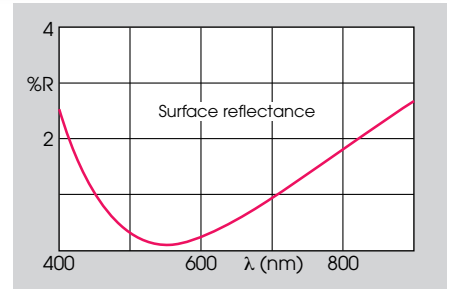
1.2 High-index planoconvex laser lenses

≡Customise 

1

Lenses in high-index glass ($n = 1.785$) have only 55% of the spherical aberration of equivalent BK7 lenses, and can be very efficiently AR coated with a single-layer coating. Beam expanders etc. can therefore be made with near diffraction-limited performance and very high transmittance, and suitable for high powers, having no cemented interfaces.

Specification	
Diameter	+0, -0.1mm
Focal length (at 587nm)	±0.2mm (≤10mm) ±2% (>10mm)
Figure (sphericity)	$\lambda/4$ (typical)
Scratch-dig	40-20 (see p.2)
Centration	0.05mm (FL ≤ 25mm) 1.5mrad (FL > 25mm)
Material	SF11 (see p.2)



Catalogue No. AR coated	Focal length (mm)	Dia. (mm)	Back FL (mm)	Centre thick. (mm)	Edge thick. (mm)	Diffraction- limited aperture (mm)
025 PX 025	2.5	2.5	1.8	1.2	0.75	1.01
04 PX 025	4	2.5	3.4	1.0	0.75	1.44
04 PX 04	4	4	3.0	1.7	1	1.44
06 PX 04	6.3	4	5.5	1.4	1	2.03
06 PX 06	6.3	6.3	4.8	2.6	1.5	2.03
10 PX 04	10	4	9.3	1.3	1	2.87
16 PX 06	16	6.3	14.9	1.9	1.5	4.08
25 PX 06	25	6.3	24.0	1.8	1.5	5.71
25 PX 25	25	25	21.6	6.0	1.5	5.71
40 PX 10	40	10	38.9	1.9	1.5	8.11
63 PX 16	63	16	61.7	2.2	1.5	11.4
100 PX 16	100	16	98.9	1.9	1.5	16.1*
160 PX 25	160	25	158.2	2.1	1.5	23.0

Options available (see p.3)

- Mounting (all items)
- Edging to smaller diameters

Aberration calculation (see p.2)

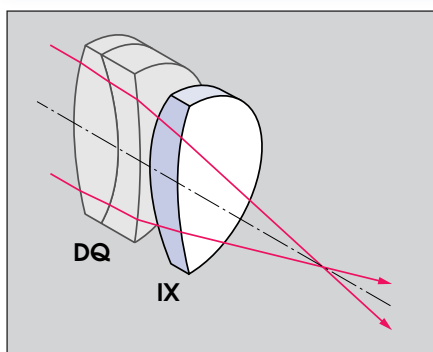


The maximum aperture at which the lens is diffraction-limited at 633nm is given in the table.

* Diffraction-limited at full aperture

1.3 Meniscus laser lenses

≡Customise 



A high-index meniscus lens can be added to a focusing lens to increase its power and relative aperture with very little extra spherical aberration or coma. Those listed here are designed to be used with another lens of the same focal length (with collimated input), such as the PX series above or the doublets on p.17. The power and numerical aperture of the lens are then doubled. Such combinations are listed ready-mounted on pp.19, 20.

The lenses are available with and without AR coating; for coating performance see graph in Section 1.2.

Specification	
Diameter	+0, -0.1mm
Focal length (at 587nm)	±2%
Figure (sphericity)	$\lambda/4$ (typical)
Scratch-dig	40-20 (see p.2)
Centration	0.05mm (FL ≤ 25mm) 1.5mrad (FL > 25mm)
Material	SF11 (see p.2)

Options available (see p.3)

- Mounting (all items)
- Special AR coating
- Edging to smaller diameters

Aberration calculation (see p.2)



See also:

Combinations including these lenses p.19, 20
Crown-glass meniscus lenses p.8

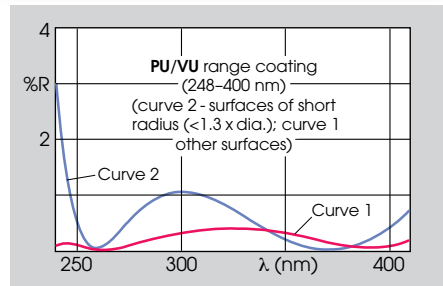
Catalogue No. Uncoated	Catalogue No. AR coated	Focal length (mm)	Dia. (mm)	Back FL (mm)	Centre thick. (mm)	Edge thick. (mm)	Radii (mm)
10 IT 04	10 IX 04	10	4	8.3	1.2	0.8	3.16/4.40
16 IT 06	16 IX 06	16	6.3	13.3	1.9	1.3	5.05/7.04
25 IT 10	25 IX 10	25	10	22.2	2.1	1.2	8.25/12.63
40 IT 16	40 IX 16	40	16	36.6	2.6	1.2	13.60/21.97



1.4 UV-silica convex lenses ≡Customise ✂

Synthetic fused silica is normally specified for UV use (down to 170nm) but also has very low fluorescence, excellent thermal properties and high resistance to radiation and to chemical attack. Lenses are available uncoated or with multilayer AR coating for 248-400nm.

Specification	
Diameter	+0, -0.1mm
Focal length (at 587nm)	±2%
Scratch-dig	40-20 (see p.2)
Edge thickness	1.5mm ± 0.35mm
Material	UV silica (see p.2 and graph p.11)



Aberration calculation (see p.2)

$k = 0.0865$

Sets at special price

01 PS 00	Uncoated set (31 lenses)
01 PU 00	AR-coated set (31 lenses)

- Options available (see p.3)**
- Mounting (all items)
 - Special AR coating
 - Edging to smaller diameters

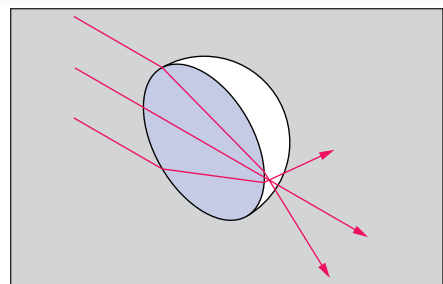
Catalogue No. Uncoated	Catalogue No. AR coated 248-400nm	Focal length (mm)	Diameter (mm)	Back FL (mm)	Form
10 PS 06	10 PU 06	10	6.3	8.1	planovex
10 VS 10	10 VU 10	10	10	8.2	bivex
16 PS 10	16 PU 10	16	10	13.6	planovex
25 PS 10	25 PU 10	25	10	23.2	planovex
16 VS 16	16 VU 16	16	16	13.5	bivex
25 PS 16	25 PU 16	25	16	21.7	planovex
40 PS 16	40 PU 16	40	16	37.7	planovex
63 PS 16	63 PU 16	63	16	61.2	planovex
25 VS 25	25 VU 25	25	25	21.5	bivex
32 PS 25	32 PU 25	31.5	25	25.5	planovex
40 PS 25	40 PU 25	40	25	35.6	planovex
50 PS 25	50 PU 25	50	25	46.4	planovex
63 PS 25	63 PU 25	63	25	60.0	planovex
80 PS 25	80 PU 25	80	25	77.5	planovex
100 PS 25	100 PU 25	100	25	97.8	planovex
125 PS 25	125 PU 25	125	25	123.0	planovex

Catalogue No. Uncoated	Catalogue No. AR coated 248-400nm	Focal length (mm)	Diameter (mm)	Back FL (mm)	Form
160 PS 25	160 PU 25	160	25	158.2	planovex
200 PS 25	200 PU 25	200	25	198.4	planovex
250 PS 25	250 PU 25	250	25	248.5	planovex
500 PS 25	500 PU 25	500	25	498.7	planovex
1000 PS 25	1000 PU 25	1000	25	998.9	planovex
40 VS 40	40 VU 40	40	40	34.7	bivex
63 PS 40	63 PU 40	63	40	56.5	planovex
100 PS 40	100 PU 40	100	40	95.8	planovex
160 PS 40	160 PU 40	160	40	157.1	planovex
63 PS 50	63 PU 50	63	50	52.1	planovex
100 PS 50	100 PU 50	100	50	93.9	planovex
160 PS 50	160 PU 50	160	50	156.0	planovex
250 PS 50	250 PU 50	250	50	247.1	planovex
500 PS 50	500 PU 50	500	50	498.0	planovex
1000 PS 50	1000 PU 50	1000	50	998.5	planovex

1.5 Sapphire and glass ball lenses ≡Customise ✂

Ball lenses have very low spherical aberration and so focus and collimate light very accurately; a sapphire ball has only 23% of the aberration of an equivalent BK7 planovex lens over the same aperture (see boxes p.2 and below). They are available economically at very high precision and are simple to mount. Sapphire can be used from 200nm to 5.3µm and has exceptional hardness, strength and temperature resistance (see p.2 and graph p.31).

Specification	
Diameter*	±2.5µm
Figure (sphericity)*	1λ (typical)
Scratch-dig	40-20 (see p.2)
Material data	see p.2



*Manufacturer's data

Aberration calculation (see p.2)

$k = 0.0156$
(sapphire)
 $k = 0.0366$ (BK7)

Sapphire ball lenses

Catalogue No.	Focal length (mm)	Dia. (mm)	Back FL (mm)
003 VA 006	0.345	0.6	0.045
006 VA 01	0.576	1	0.076
009 VA 016	0.921	1.6	0.121
014 VA 025	1.44	2.5	0.19
023 VA 04	2.30	4	0.30
035 VA 06	3.45	6	0.45
06 VA 10	5.76	10	0.76

BK7 ball lenses

Catalogue No.	Focal length (mm)	Dia. (mm)	Back FL (mm)
007 VQ 01	0.734	1	0.234
011 VQ 015	1.10	1.5	0.35
018 VQ 025	1.83	2.5	0.58
03 VQ 04	2.93	4	0.93
04 VQ 06	4.40	6	1.40
07 VQ 10	7.34	10	2.34

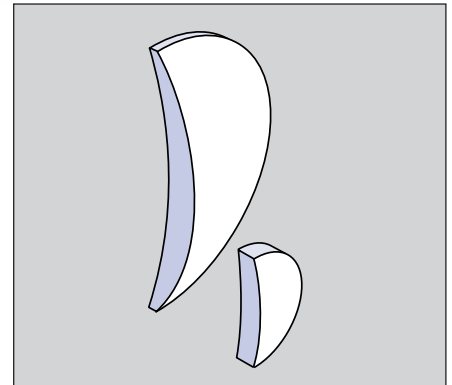
1.6 Crown-glass meniscus lenses

≡Customise

1

Ophthalmic meniscus lenses offer a wide range of powers at low cost, especially in longer focal lengths. The 60/65mm lenses may have moulded edges whilst the 25mm are edged and centred.

Specification	
Diameter	+0, -0.25mm (25mm) ±1mm (60/65mm)
Back vertex power (= 1/back FL)	± 0.06D (≤ 4D) ± 0.12D (> 4D)
Scratch-dig	60-40 (see p.2)
Material	B270 (see p.2)



Catalogue No. 65mm dia.	Catalogue No. 25mm dia.	Focal length (mm)	Back FL (mm)	Back vertex power (diopter)
100 IO 60*	–	106	100	10
125 IO 60*	–	132	125	8
160 IO 60*	160 IO 25	165	160	6.25
200 IO 65	200 IO 25	207	200	5
250 IO 65	250 IO 25	257	250	4
333 IO 65	333 IO 25	340	333	3
400 IO 65	400 IO 25	407	400	2.5
500 IO 65	500 IO 25	508	500	2
570 IO 65	570 IO 25	580	570	1.75
667 IO 65	667 IO 25	674	667	1.5
800 IO 65	800 IO 25	809	800	1.25
1000 IO 65	1000 IO 25	1010	1000	1
1333 IO 65	1333 IO 25	1346	1333	0.75
2000 IO 65	2000 IO 25	2019	2000	0.5
4000 IO 65	4000 IO 25	4034	4000	0.25

Sets at special price

01 IO 00	25mm set (13 lenses)
02 IO 00	60/65mm set (15 lenses)

Options available (see p.3)

- Mounting (25mm dia. only)
- AR coating
- Edging to smaller diameters

See also:

High-index meniscus lenses	p.6
Negative meniscus lenses	p.11
Cylindrical meniscus lenses	p.13

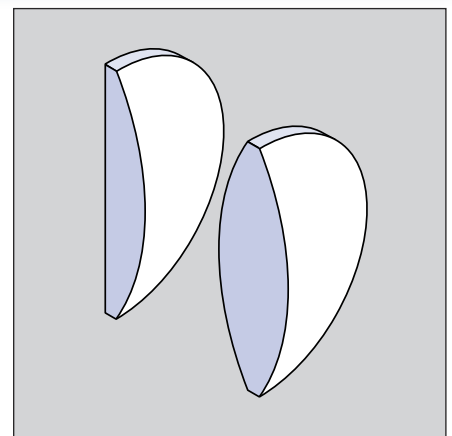
*60mm diameter

1.7 Commercial convex lenses

≡Customise

Commercial-grade lenses are suitable for teaching and experimental work, and as condensers, magnifiers etc. where high quality is not needed.

Specification	
Dimensions	Nominal
Material	Float glass or B270 (see p.2)



Planoconvex lenses

Catalogue No.	Focal length (mm)	Dia. (mm)
16 PC 06	16	6.3
25 PC 06	25	6.3
40 PC 16	40	16
50 PC 25	50	25
70 PC 25	70	25
100 PC 25	100	25
50 PC 38	50	38
100 PC 38	100	38
150 PC 38	150	38
200 PC 38	200	38
500 PC 38	500	38
100 PC 50	100	50
143 PC 50	143	50
200 PC 50	200	50
400 PC 50	400	50
150 PC 100	150	100

Biconvex lenses

Catalogue No.	Focal length (mm)	Dia. (mm)
50 VC 25	50	25
100 VC 25	100	25
150 VC 25	150	25
50 VC 38	50	38
100 VC 38	100	38
150 VC 38	150	38
250 VC 38	250	38
500 VC 38	500	38
1000 VC 38	1000	38
50 VC 50	50	50
100 VC 50	100	50
150 VC 50	150	50
250 VC 50	250	50
500 VC 50	500	50
1000 VC 50	1000	50

Sets at special price

03 PC 00	Planoconvex set (16 lenses)
03 VC 00	Biconvex set (15 lenses)

Options available (see p.3)

- Mounting (lenses up to 50mm dia.)
- AR coating
- Edging to smaller diameters



1.8 Large condenser lenses



These planoconvex condenser lenses are optically polished with moulded edges. Except for **568 PQ 254** they are in low-expansion borosilicate glass (Suprax) and have excellent thermal shock resistance. This material contains some striae and bubbles, but these are not normally significant for condenser applications.

See also:

Smaller planovex lenses	pp.4,8
Aspheric condensers	p.15
Fresnel lenses	p.16

Specification

Diameter	nominal
Focal length	±5%
Refractive index (n_d):	
Suprax	1.483
B270	1.523
Expansion coefficient (10⁻⁶/K):	
Suprax	4.3
B270	8.2

Catalogue No.	Focal length (mm)	Dia. (mm)	Material FL (mm)
237 PH 152	237	152	Suprax
329 PH 152	329	152	Suprax
427 PH 152	427	152	Suprax
329 PH 203	329	203	Suprax
427 PH 203	427	203	Suprax
534 PH 203	534	203	Suprax
568 PQ 254	568	254	B270

1.9 Fire-polished biconvex lenses



These inexpensive moulded glass lenses of large aperture are commonly used to concentrate light onto detectors and for similar non-critical uses.

Options available (see p.3)

- Edging to smaller diameters

Sets at special price

01 VF 00 Complete set (4 lenses)

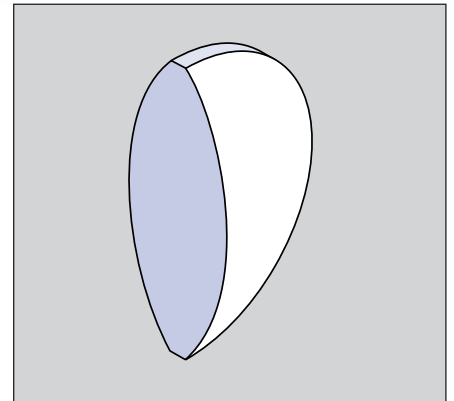
See also:

Aspheric condensers	p.15
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Specification

Diameter	+0, -0.5mm
Focal length	±10%
Material	B270 (see p.2)

Catalogue No.	Focal length (mm)	Dia. (mm)	Edge thick. (mm)
07 VF 07	7	7.39	2.0
12 VF 14	12	13.97	2.4
23 VF 26	23	26.2	2.0
50 VF 42	50	51.0*	3.9



*Flanged lens, 42mm aperture

1.10 Plastic lenses

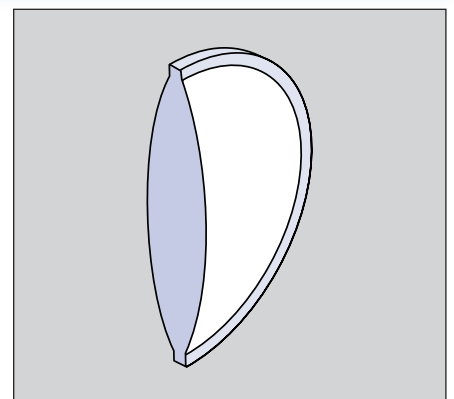


Plastic lenses are generally used for their low price, particularly in bulk, but are also lightweight, shatterproof and machinable.

Specification

Diameter	+0, -0.25mm
Focal length	±5%
Material data:	
Acrylic (see p.2)	n = 1.49, v = 58
Polystyrene	n = 1.59, v = 31

Catalogue No.	Focal length (mm)	Overall dia. (mm)	Lens aper. (mm)	Back FL (mm)	Material	Form
05 VP 04	5.4	7.8	4.1	4.0	acrylic	bivex
07 VP 06	6.8	6.4	6.0	5.8	acrylic	bivex
10 VP 09	10.3	10.0	8.8	9.1	acrylic	bivex
20 VP 14	20.0	16.0	14.0	19.0	polystyrene	bivex
26 VP 08	26.0	9.8	7.8	25.3	acrylic	bivex
33 PP 09	32.7	9.0	9.0	30.6	acrylic	planovex
41 PP 13	40.8	12.9	12.8	39.3	acrylic	planovex
53 VP 18	52.9	17.9	17.9	52.2	polystyrene	bivex
62 VP 25	61.8	25.5	25.5	60.6	acrylic	bivex
100 VP 25	100.4	25.4	25.4	99.6	acrylic	bivex
159 PP 34	159.2	33.6	33.6	157.1	acrylic	planovex
499 PP 38	499.0	38.1	38.1	497.8	acrylic	planovex



Sets at special price

01 PP 00 Complete set (12 lenses)

See also:

Plastic aspherics	pp.14,15
Fresnel lenses	p.16