

Laser Grade Optical Flats

- Fused Silica - BK7, Pyrex, Zerodur™
- Borosilicate Glass for low expansion applications
- Single or double surface polish
- Super-polish minimizes subsurface damage for high power laser use
- Standard diameters from 10mm to 152.4mm



Laser components require highly polished substrates as well as high performance coatings. Scattering of laser light, or worse, laser damage can occur if the substrate is made of inferior material or if it is inadequately polished. Although our coatings may be applied to a wide variety of substrates, we offer a popular selection of laser grade optical substrates.

Ultra-Violet grade synthetic fused silica provides the best Ultra-Violet and visible transmission characteristics and is a highly durable material. It is recommended for short wavelength applications. Laser grade BK7 optical glass is the most commonly used material for laser mirrors and windows. For applications where low thermal expansion is important we offer a range of pyrex and Zerodur™ substrates also.

Our standard substrates have a laser polish on one surface and a commercial polish or ground on the back surface. We also offer “window” substrates which are laser polished on both surfaces. These should be selected for transmitting applications such as beamsplitters.

The polishing techniques we use produce a super polish with a surface roughness of 5 to 10 Angstroms and very low scatter. Material of 6 to 7 times grit diameter is removed during each grind and polish process to ensure very little sub-surface fracturing. This results in a substrate which is capable of withstanding high energy laser radiation.

Specifications & Tolerances

Surface flatness:	1λ , $\lambda/4$, $\lambda/10$, $\lambda/20$
Thickness:	<50.8mm ± 0.1 mm, >50.8mm ± 0.2 mm
Surface quality:	10-5, 20-10
Bevel:	0.2mm x 45° typical
Diameter:	<50.8mm +0, -0.1mm, ≥ 50.8 mm +0, -0.2mm
Parallelism:	≤ 3 arcmin
Material:	Synthetic Fused Silica, BK7, Pyrex
Clear aperture:	>90% diameter

Spherical Lenses

Cylindrical Lenses

Lens Kits

Achromatic Doublets

Multi-Element

Micro Optics

Mirrors

Prisms

Substrates & Windows

Beamsplitters

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As well as the substrates offered here we can provide a wide selection of shapes and sizes, with plano, spherical or cylindrical surfaces, so please call and ask for the exact substrate you need.

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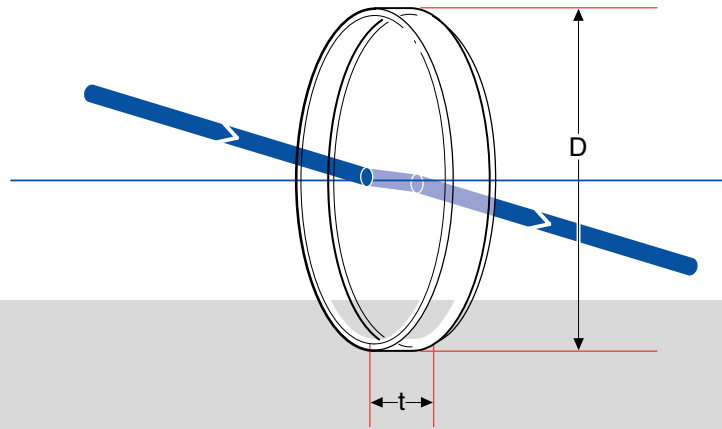
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OPTICAL COMPONENTS

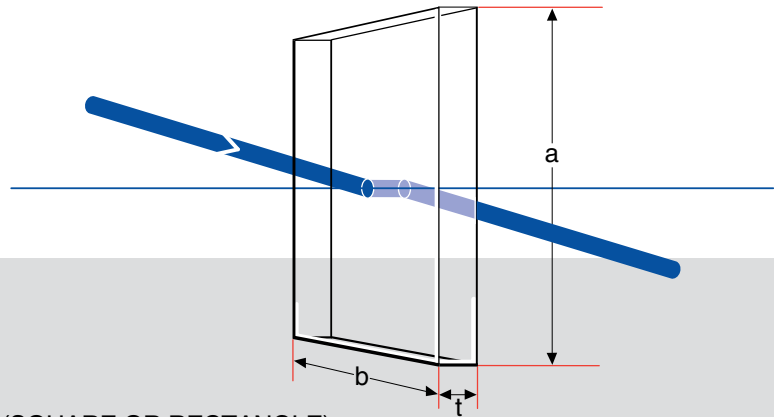
- Spherical Lenses
- Cylindrical Lenses
- Lens Kits
- Achromatic Doublets
- Multi-Element
- Micro Optics
- Mirrors
- Prisms

Substrates & Windows

- Beamsplitters
- Polarizers
- Filter & Apertures



SUBSTRATE



OPTICAL FLATS (SQUARE OR RECTANGLE)

Optical Flats-Round

Diameter, D (mm)	Thickness, t (mm)	Material	Surface Flatness	Surface Quality	Rear Surface	Price	PART NUMBER
10.0	3.0	BK7	$\lambda/10$	10 - 5	Ground		047-0523
10.0	5.0	BK7	$\lambda/10$	10 - 5	Ground		047-0525
10.0	5.0	BK7	$\lambda/20$	10 - 5	Ground		047-0710
10.0	6.0	SFS	$\lambda/20$	20 - 10	Ground		048-0312
12.7	5.0	BK7	$\lambda/10$	10 - 5	Polished		047-0535
12.7	5.0	SFS	$\lambda/10$	10 - 5	Polished		048-0115
15.0	3.0	BK7	$\lambda/10$	10 - 5	Ground		047-0536
15.0	5.0	BK7	$\lambda/10$	10 - 5	Ground		047-0537
15.0	5.0	BK7	$\lambda/20$	10 - 5	Ground		047-0715
15.0	6.0	SFS	$\lambda/20$	20 - 10	Ground		048-0322
19.1	5.0	BK7	$\lambda/10$	10 - 5	Polished		047-0545
20.0	3.0	BK7	$\lambda/10$	10 - 5	Ground		047-0548
20.0	5.0	BK7	$\lambda/4$	10 - 5	Ground		047-0342
20.0	5.0	BK7	$\lambda/10$	10 - 5	Ground		047-0549
20.0	5.0	BK7	$\lambda/20$	10 - 5	Ground		047-0720
20.0	6.0	SFS	$\lambda/20$	20 - 10	Ground		048-0342
25.0	5.0	BK7	λ	10 - 5	Polished		047-0170
25.0	5.0	BK7	$\lambda/4$	10 - 5	Polished		047-0350

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Optical Flats-Round (continued)

Diameter, D (mm)	Thickness, t (mm)	Material	Surface Flatness	Surface Quality	Rear Surface	Price	PART NUMBER
25.0	5.0	BK7	$\lambda/10$	10 - 5	Polished		047-0550
25.0	5.0	BK7	$\lambda/20$	10 - 5	Polished		047-0725
25.0	6.0	SFS	$\lambda/20$	20 - 10	Polished		048-0352
25.4	5.0	BK7	$\lambda/10$	10 - 5	Polished		047-0565
25.4	5.0	SFS	$\lambda/10$	20 - 10	Polished		048-0145
30.0	5.0	BK7	λ	10 - 5	Polished		047-0190
30.0	5.0	BK7	$\lambda/4$	10 - 5	Polished		047-0370
30.0	5.0	BK7	$\lambda/10$	10 - 5	Polished		047-0570
30.0	5.0	BK7	$\lambda/20$	10 - 5	Polished		047-0730
30.0	6.0	SFS	$\lambda/20$	20 - 10	Polished		048-0372
38.1	6.0	BK7	$\lambda/10$	10 - 5	Polished		047-0585
40.0	6.0	BK7	λ	10 - 5	Polished		047-0230
40.0	6.0	BK7	$\lambda/4$	10 - 5	Polished		047-0390
40.0	6.0	BK7	$\lambda/10$	10 - 5	Polished		047-0590
40.0	6.0	BK7	$\lambda/20$	10 - 5	Polished		047-0735
40.0	8.0	SFS	$\lambda/20$	20 - 10	Polished		048-0392
50.0	8.0	BK7	λ	10 - 5	Polished		047-0240
50.0	8.0	BK7	$\lambda/4$	10 - 5	Polished		047-0440
50.0	8.0	BK7	$\lambda/10$	10 - 5	Polished		047-0660
50.0	8.0	BK7	$\lambda/20$	10 - 5	Polished		047-0740
50.0	10.0	SFS	$\lambda/20$	20 - 10	Polished		048-0442
50.8	8.0	BK7	$\lambda/10$	10 - 5	Polished		047-0675
50.8	8.0	SFS	$\lambda/10$	20 - 10	Polished		048-0195
60.0	10.0	PYREX	λ	10 - 5	Polished		049-0150
60.0	10.0	PYREX	$\lambda/4$	10 - 5	Polished		049-0179
60.0	10.0	PYREX	$\lambda/10$	10 - 5	Polished		049-0558
60.0	10.0	PYREX	$\lambda/20$	10 - 5	Polished		049-0790
76.2	12.0	BK7	$\lambda/10$	10 - 5	Polished		047-0685
80.0	12.0	PYREX	λ	10 - 5	Polished		049-0155
80.0	12.0	PYREX	$\lambda/4$	10 - 5	Polished		049-0220
80.0	12.0	PYREX	$\lambda/10$	10 - 5	Polished		049-0580
80.0	12.0	PYREX	$\lambda/20$	10 - 5	Polished		049-0792
100.0	15.0	PYREX	λ	10 - 5	Polished		049-0160
100.0	15.0	PYREX	$\lambda/4$	10 - 5	Polished		049-0230
100.0	15.0	PYREX	$\lambda/10$	10 - 5	Polished		049-0590
130.0	18.0	PYREX	λ	10 - 5	Polished		049-0165
130.0	18.0	PYREX	$\lambda/4$	10 - 5	Polished		049-0260
130.0	18.0	PYREX	$\lambda/10$	10 - 5	Polished		049-0678
150.0	20.0	PYREX	λ	10 - 5	Polished		049-0170
150.0	20.0	PYREX	$\lambda/4$	10 - 5	Polished		049-0270
150.0	20.0	PYREX	$\lambda/10$	10 - 5	Polished		049-0680

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	Size, a x b (mm)	Thickness, t (mm)	Material	Surface Flatness	Surface Quality	Rear Surface	Price	PART NUMBER
	10 x 10	3.0	BK7	$\lambda/10$	10 - 5	Ground		047-1330
	10 x 10	5.0	BK7	$\lambda/10$	10 - 5	Ground		047-1332
	10 x 10	5.0	BK7	$\lambda/20$	10 - 5	Ground		047-1392
	10 x 10	6.0	SFS	$\lambda/20$	20 - 10	Ground		048-1101
	15 x 15	3.0	BK7	$\lambda/4$	10 - 5	Ground		047-1220
	15 x 15	3.0	BK7	$\lambda/10$	10 - 5	Ground		047-1340
	15 x 15	5.0	BK7	$\lambda/4$	10 - 5	Ground		047-1222
	15 x 15	5.0	BK7	$\lambda/10$	10 - 5	Ground		047-1342
	15 x 15	5.0	BK7	$\lambda/20$	10 - 5	Ground		047-1393
	15 x 15	6.0	SFS	$\lambda/20$	20 - 10	Ground		048-1102
	20 x 20	3.0	BK7	$\lambda/4$	10 - 5	Ground		047-1228
	20 x 20	3.0	BK7	$\lambda/10$	10 - 5	Ground		047-1348
	20 x 20	5.0	BK7	$\lambda/4$	10 - 5	Ground		047-1230
	20 x 20	5.0	BK7	$\lambda/10$	10 - 5	Ground		047-1350
	20 x 20	5.0	BK7	$\lambda/20$	10 - 5	Ground		047-1394
	20 x 20	6.0	SFS	$\lambda/20$	20 - 10	Ground		048-1103
	25 x 25	5.0	BK7	λ	10 - 5	Ground		047-1140
	25 x 25	5.0	BK7	$\lambda/4$	10 - 5	Ground		047-1240
	25 x 25	5.0	BK7	$\lambda/10$	10 - 5	Ground		047-1360
	25 x 25	5.0	BK7	$\lambda/20$	10 - 5	Ground		047-1395
	25 x 25	6.0	SFS	$\lambda/20$	20 - 10	Ground		048-1115
	30 x 30	5.0	BK7	λ	10 - 5	Ground		047-1150
	30 x 30	5.0	BK7	$\lambda/4$	10 - 5	Ground		047-1250
	30 x 30	5.0	BK7	$\lambda/10$	10 - 5	Ground		047-1370
	30 x 30	5.0	BK7	$\lambda/20$	10 - 5	Ground		047-1397
	30 x 30	6.0	SFS	$\lambda/20$	20 - 10	Ground		048-1125
	40 x 40	6.0	PYREX	λ	10 - 5	Polished		049-1510
	40 x 40	6.0	PYREX	$\lambda/4$	10 - 5	Polished		049-1550
	40 x 40	6.0	PYREX	$\lambda/10$	10 - 5	Polished		049-1660
	40 x 40	6.0	PYREX	$\lambda/20$	10 - 5	Polished		049-1710
	50 x 50	8.0	PYREX	λ	10 - 5	Polished		049-1511
	50 x 50	8.0	PYREX	$\lambda/4$	10 - 5	Polished		049-1560
	50 x 50	8.0	PYREX	$\lambda/10$	10 - 5	Polished		049-1670
	50 x 50	8.0	PYREX	$\lambda/20$	10 - 5	Polished		049-1715
	60 x 60	10.0	PYREX	λ	10 - 5	Polished		049-1513
	60 x 60	10.0	PYREX	$\lambda/4$	10 - 5	Polished		049-1562
	60 x 60	10.0	PYREX	$\lambda/10$	10 - 5	Polished		049-1675
	60 x 60	10.0	PYREX	$\lambda/20$	10 - 5	Polished		049-1720
	80 x 80	12.0	PYREX	λ	10 - 5	Polished		049-1515
	80 x 80	12.0	PYREX	$\lambda/4$	10 - 5	Polished		049-1565
	80 x 80	12.0	PYREX	$\lambda/10$	10 - 5	Polished		049-1677
	80 x 80	12.0	PYREX	$\lambda/20$	10 - 5	Polished		049-1725
	100 x 100	15.0	PYREX	λ	10 - 5	Polished		049-1518
	100 x 100	15.0	PYREX	$\lambda/4$	10 - 5	Polished		049-1570
	100 x 100	15.0	PYREX	$\lambda/10$	10 - 5	Polished		049-1680
	130 x 130	18.0	PYREX	λ	10 - 5	Polished		049-1520
	130 x 130	18.0	PYREX	$\lambda/4$	10 - 5	Polished		049-1572
	130 x 130	18.0	PYREX	$\lambda/10$	10 - 5	Polished		049-1685
	150 x 150	20.0	PYREX	λ	10 - 5	Polished		049-1522
	150 x 150	20.0	PYREX	$\lambda/4$	10 - 5	Polished		049-1575
	150 x 150	20.0	PYREX	$\lambda/10$	10 - 5	Polished		049-1690

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Optical Flats-Rectangle

Size, a x b (mm)	Thickness, t (mm)	Material	Surface Flatness	Surface Quality	Rear Surface	Price	PART NUMBER
10 x 15	3.0	BK7	$\lambda/4$	10 - 5	Ground		047-1721
10 x 15	3.0	BK7	$\lambda/10$	10 - 5	Ground		047-1730
10 x 15	5.0	BK7	$\lambda/4$	10 - 5	Ground		047-1720
10 x 15	5.0	BK7	$\lambda/10$	10 - 5	Ground		047-1731
10 x 15	5.0	BK7	$\lambda/20$	10 - 5	Ground		047-1740
10 x 15	6.0	SFS	$\lambda/20$	20 - 10	Ground		048-1222
15 x 25	3.0	BK7	$\lambda/4$	10 - 5	Ground		047-1722
15 x 25	3.0	BK7	$\lambda/10$	10 - 5	Ground		047-1732
15 x 25	5.0	BK7	$\lambda/4$	10 - 5	Ground		047-1723
15 x 25	5.0	BK7	$\lambda/10$	10 - 5	Ground		047-1733
15 x 25	5.0	BK7	$\lambda/20$	10 - 5	Ground		047-1741
15 x 25	6.0	SFS	$\lambda/20$	20 - 10	Ground		048-1225
20 x 30	5.0	BK7	λ	10 - 5	Ground		047-1710
20 x 30	5.0	BK7	$\lambda/4$	10 - 5	Ground		047-1724
20 x 30	5.0	BK7	$\lambda/10$	10 - 5	Ground		047-1734
20 x 30	5.0	BK7	$\lambda/20$	10 - 5	Ground		047-1742
20 x 30	6.0	SFS	$\lambda/20$	20 - 10	Ground		048-1226
25 x 35	5.0	BK7	λ	10 - 5	Ground		047-1711
25 x 35	5.0	BK7	$\lambda/4$	10 - 5	Ground		047-1725
25 x 35	5.0	BK7	$\lambda/10$	10 - 5	Ground		047-1735
25 x 35	5.0	BK7	$\lambda/20$	10 - 5	Ground		047-1743
25 x 35	6.0	SFS	$\lambda/20$	20 - 10	Ground		048-1230
30 x 40	6.0	PYREX	λ	10 - 5	Polished		049-2485
30 x 40	6.0	PYREX	$\lambda/4$	10 - 5	Polished		049-2345
30 x 40	6.0	PYREX	$\lambda/10$	10 - 5	Polished		049-2458
30 x 40	6.0	PYREX	$\lambda/20$	10 - 5	Polished		049-2495
30 x 40	8.0	SFS	$\lambda/20$	20 - 10	Polished		048-1235
40 x 50	8.0	PYREX	λ	10 - 5	Polished		049-2486
40 x 50	8.0	PYREX	$\lambda/4$	10 - 5	Polished		049-2350
40 x 50	8.0	PYREX	$\lambda/10$	10 - 5	Polished		049-2460
40 x 50	8.0	PYREX	$\lambda/20$	10 - 5	Polished		049-2496
50 x 60	10.0	PYREX	λ	10 - 5	Polished		049-2487
50 x 60	10.0	PYREX	$\lambda/4$	10 - 5	Polished		049-2352
50 x 60	10.0	PYREX	$\lambda/10$	10 - 5	Polished		049-2462
50 x 60	10.0	PYREX	$\lambda/20$	10 - 5	Polished		049-2497
60 x 80	12.0	PYREX	λ	10 - 5	Polished		049-2488
60 x 80	12.0	PYREX	$\lambda/4$	10 - 5	Polished		049-2355
60 x 80	12.0	PYREX	$\lambda/10$	10 - 5	Polished		049-2465
60 x 80	12.0	PYREX	$\lambda/20$	10 - 5	Polished		049-2498
80 x 100	15.0	PYREX	λ	10 - 5	Polished		049-2489
80 x 100	15.0	PYREX	$\lambda/4$	10 - 5	Polished		049-2360
80 x 100	15.0	PYREX	$\lambda/10$	10 - 5	Polished		049-2470

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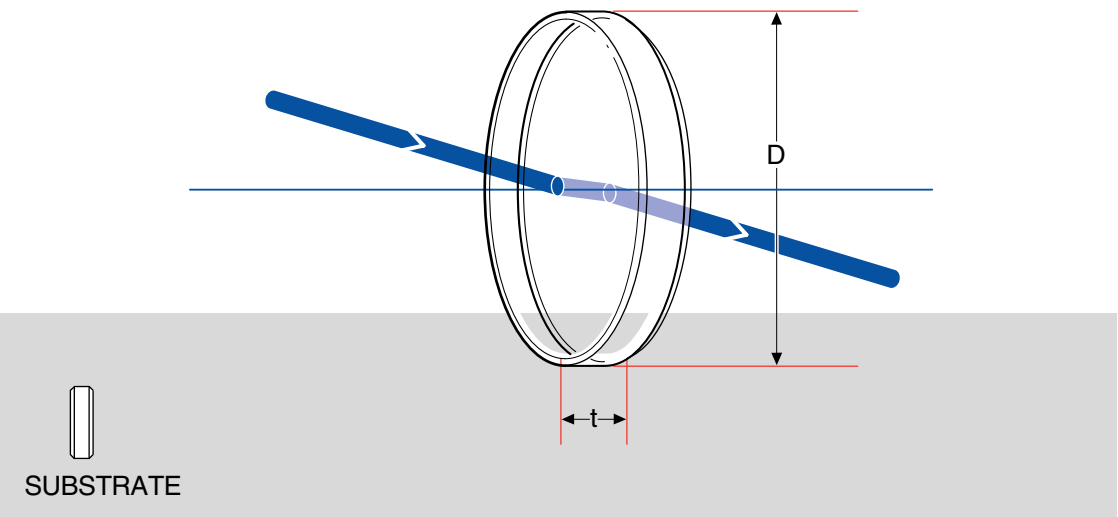
Low Scattering Substrates

- Low scattering substrates are precision polished on both surfaces
- Surface roughness is <2 angstroms.
- Available as parallel or wedged substrates.



Specifications & Tolerances

Dimensions: $\pm 0.2\text{mm}$ Thickness: $\pm 0.1\text{mm}$
 Clear aperture: 90% Wedged angle: ± 5 arcmin
 Material: Synthetic Fused Silica, UV Grade CaF₂ (CFU)



Low Scattering Substrates

Diameter, D (mm)	Thickness, t (mm)	Material	Surface Flatness	Parallelism (arcsec)	Surface Quality	Price	PART NUMBER
25.4	5.0	SFS	$\lambda/10$	≤ 5	10 - 5		048-2640
30.0	3.0	SFS	$\lambda/10$	≤ 5	10 - 5		048-2650
30.0	5.0	SFS	$\lambda/10$	≤ 5	10 - 5		048-2652
50.0	5.0	SFS	$\lambda/10$	≤ 5	10 - 5		048-2670
25.4	5.0	CFU	$\lambda/10$	≤ 5	20 - 10		049-4420
30.0	5.0	CFU	$\lambda/10$	≤ 5	20 - 10		049-4425

Low Scattering Wedged Substrates

Diameter, D (mm)	Thickness, t (mm)	Material	Surface Flatness	Wedge Degree	Surface Quality	Price	PART NUMBER
30.0	5.0	SFS	$\lambda/10$	1	10 - 5		048-2680
50.0	8.0	SFS	$\lambda/10$	1	10 - 5		048-2685
30.0	5.0	CFU	$\lambda/10$	1	20-10		049-4430

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Concave Mirror Substrates

Radius of Curvature, r (mm)	Diameter, D (mm)	Edge, te (mm)	Center, tc (mm)	Price	PART NUMBER
10	15.0	7.0	3.6		047-5110
20	15.0	5.0	3.5		047-5112
30	15.0	5.0	4.0		047-5114
40	15.0	5.0	4.3		047-5115
50	15.0	5.0	4.4		047-5116
100	15.0	5.0	4.7		047-5121
250	15.0	5.0	4.9		047-5125
500	15.0	5.0	4.9		047-5128
1000	15.0	5.0	5.0		047-5132
2000	15.0	5.0	5.0		047-5134
4000	15.0	5.0	5.0		047-5137
5000	15.0	5.0	5.0		047-5138
10000	15.0	5.0	5.0		047-5139
20000	15.0	5.0	5.0		047-5140
30000	15.0	5.0	5.0		047-5141
50	25.0	7.0	5.4		047-5216
100	25.0	5.0	4.2		047-5221
250	25.0	5.0	4.6		047-5225
500	25.0	5.0	4.8		047-5228
1000	25.0	5.0	4.9		047-5232
2000	25.0	5.0	4.9		047-5234
4000	25.0	5.0	5.0		047-5237
5000	25.0	5.0	5.0		047-5238
10000	25.0	5.0	5.0		047-5239
20000	25.0	5.0	5.0		047-5240
30000	25.0	5.0	5.0		047-5241
50	25.4	7.0	5.4		047-5316
100	25.4	5.0	4.2		047-5321
250	25.4	5.0	4.6		047-5325
500	25.4	5.0	4.8		047-5328
1000	25.4	5.0	4.9		047-5332
50	50.0	13.0	6.3		047-5416
100	50.0	10.0	6.8		047-5421
250	50.0	8.0	6.7		047-5425
500	50.0	8.0	7.4		047-5428
1000	50.0	8.0	7.7		047-5432
2000	50.0	8.0	7.8		047-5434
4000	50.0	8.0	7.9		047-5437
5000	50.0	8.0	7.9		047-5438
10000	50.0	8.0	8.0		047-5439
20000	50.0	8.0	8.0		047-5440
30000	50.0	8.0	8.0		047-5441
50	50.8	13.0	6.3		047-5516
100	50.8	10.0	6.8		047-5521
250	50.8	8.0	6.7		047-5525
500	50.8	8.0	7.4		047-5528
1000	50.8	8.0	7.7		047-5532

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Specifications & Tolerances

Diameter:

+0 - 0.1mm

Thickness:

± 0.2mm

Surface Quality:

20-10

Radius:

± 2%

Material:

BK7

Clear Aperture:

80%

Surface Figure:

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- Beamsplitters
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Wedged Substrates

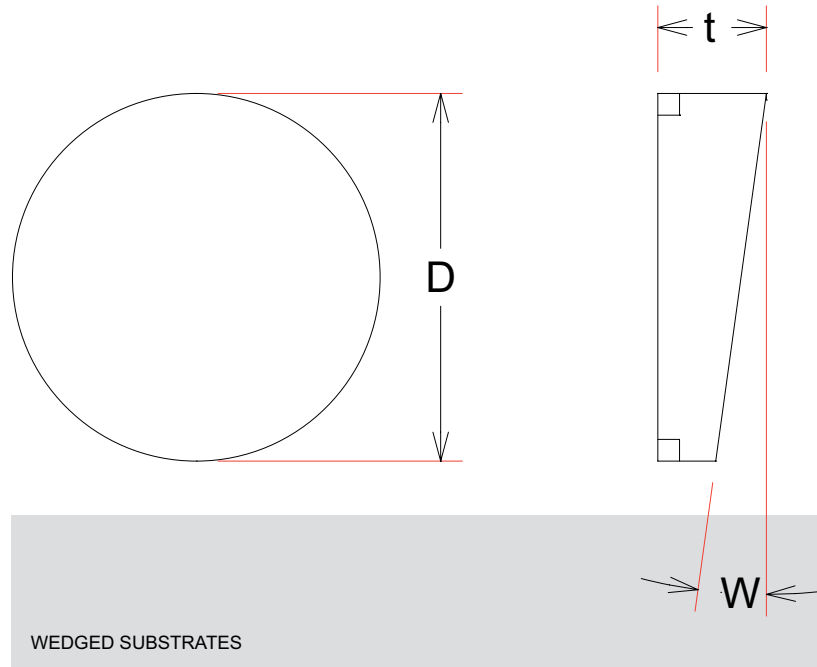
- BK7, Fused Silica and Excimer Grade Fused Silica
- Available in wedge angles 0.5, 1, 2 and 3 degrees
- Wedge angle used to reduce reflection from rear surface



Specifications & Tolerances

Diameter: $\leq 50\text{mm} +0, -0.1\text{mm}$
 $> 50\text{mm} +0, -0.2\text{mm}$
 Thickness: $\leq 50\text{mm} \pm 0.1\text{mm}$
 $> 50\text{mm} \pm 0.2\text{mm}$
 Wedge angle: $\leq \pm 5$ arcmin

Clear aperture: 90%
 Material: BK7, Synthetic Fused Silica,
 Synthetic Fused Silica for Excimer Laser
 Coating: Optional
 (see Anti-Reflection coatings)



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Wedge Angle (°)	Diameter, D (mm)	Thickness, t (mm)	Material	Surface Flatness	Surface Quality	Price	PART NUMBER
0.5	30.0	5.0	BK7	$\lambda/20$	10 - 5		047-4030
0.5	50.0	8.0	BK7	$\lambda/20$	10 - 5		047-4050
0.5	30.0	5.0	SFS	$\lambda/20$	20-10		048-4030
0.5	50.0	8.0	SFS	$\lambda/20$	20-10		048-4050
1.0	10.0	5.0	BK7	$\lambda/20$	10 - 5		047-4110
1.0	15.0	5.0	BK7	$\lambda/20$	10 - 5		047-4115
1.0	20.0	5.0	BK7	$\lambda/20$	10 - 5		047-4120
1.0	25.0	5.0	BK7	$\lambda/20$	10 - 5		047-4125

Wedged Substrates

Wedge Angle (°)	Diameter, D (mm)	Thickness, t (mm)	Material	Surface Flatness	Surface Quality	Price	PART NUMBER
1.0	30.0	5.0	BK7	$\lambda/20$	10 - 5		047-4130
1.0	50.0	8.0	BK7	$\lambda/20$	10 - 5		047-4150
1.0	60.0	10.0	BK7	$\lambda/20$	10 - 5		047-4160
1.0	80.0	12.0	BK7	$\lambda/20$	10 - 5		047-4180
1.0	100.0	15.0	BK7	$\lambda/20$	10 - 5		047-4185
1.0	10.0	5.0	SFS	$\lambda/20$	20-10		048-4110
1.0	15.0	5.0	SFS	$\lambda/20$	20-10		048-4115
1.0	20.0	5.0	SFS	$\lambda/20$	20-10		048-4120
1.0	25.0	5.0	SFS	$\lambda/20$	20-10		048-4125
1.0	30.0	5.0	SFS	$\lambda/20$	20-10		048-4130
1.0	50.0	8.0	SFS	$\lambda/20$	20-10		048-4150
1.0	60.0	10.0	SFS	$\lambda/20$	20-10		048-4160
1.0	80.0	12.0	SFS	$\lambda/20$	20-10		048-4180
1.0	100.0	15.0	SFS	$\lambda/20$	20-10		048-4185
2.0	30.0	5.0	BK7	$\lambda/20$	10 - 5		047-4190
2.0	50.0	8.0	BK7	$\lambda/20$	10 - 5		047-4195
2.0	30.0	5.0	SFS	$\lambda/20$	20-10		048-4190
2.0	50.0	8.0	SFS	$\lambda/20$	20-10		048-4195
3.0	30.0	7.0	BK7	$\lambda/20$	10 - 5		047-4210
3.0	50.0	10.0	BK7	$\lambda/20$	10 - 5		047-4215
3.0	30.0	7.0	SFS	$\lambda/20$	20-10		048-4210
3.0	50.0	10.0	SFS	$\lambda/20$	20-10		048-4215
0.5	30.0	5.0	BK7	$\lambda/10$	10 - 5		047-4330
0.5	50.0	8.0	BK7	$\lambda/10$	10 - 5		047-4350
0.5	30.0	5.0	SFS	$\lambda/10$	20-10		048-4330
0.5	50.0	8.0	SFS	$\lambda/10$	20-10		048-4350
1.0	10.0	5.0	BK7	$\lambda/10$	10 - 5		047-4410
1.0	15.0	5.0	BK7	$\lambda/10$	10 - 5		047-4415
1.0	20.0	5.0	BK7	$\lambda/10$	10 - 5		047-4420
1.0	25.0	5.0	BK7	$\lambda/10$	10 - 5		047-4425
1.0	30.0	5.0	BK7	$\lambda/10$	10 - 5		047-4430
1.0	50.0	8.0	BK7	$\lambda/10$	10 - 5		047-4450
1.0	60.0	10.0	BK7	$\lambda/10$	10 - 5		047-4460
1.0	80.0	12.0	BK7	$\lambda/10$	10 - 5		047-4480
1.0	100.0	15.0	BK7	$\lambda/10$	10 - 5		047-4485
1.0	10.0	5.0	SFS	$\lambda/10$	20-10		048-4410
1.0	15.0	5.0	SFS	$\lambda/10$	20-10		048-4415
1.0	20.0	5.0	SFS	$\lambda/10$	20-10		048-4420
1.0	25.0	5.0	SFS	$\lambda/10$	20-10		048-4425
1.0	30.0	5.0	SFS	$\lambda/10$	20-10		048-4430
1.0	50.0	8.0	SFS	$\lambda/10$	20-10		048-4450
1.0	60.0	10.0	SFS	$\lambda/10$	20-10		048-4460
1.0	80.0	12.0	SFS	$\lambda/10$	20-10		048-4480
1.0	100.0	15.0	SFS	$\lambda/10$	20-10		048-4485
2.0	30.0	5.0	BK7	$\lambda/10$	10 - 5		047-4490
2.0	50.0	8.0	BK7	$\lambda/10$	10 - 5		047-4495
2.0	30.0	5.0	SFS	$\lambda/10$	20-10		048-4490
2.0	50.0	8.0	SFS	$\lambda/10$	20-10		048-4495
3.0	30.0	7.0	BK7	$\lambda/10$	10 - 5		047-4510
3.0	50.0	10.0	BK7	$\lambda/10$	10 - 5		047-4515
3.0	30.0	7.0	SFS	$\lambda/10$	20-10		048-4510
3.0	50.0	10.0	SFS	$\lambda/10$	20-10		048-4515
1.0	30.0	5.0	SFSK	$\lambda/10$	20-10		048-4630
1.0	50.0	8.0	SFSK	$\lambda/10$	20-10		048-4650

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