

Laser Windows



- High precision, laser quality substrates
- AR coatings also available

These windows are intended for use with lasers of all types including high power lasers. The surfaces are polished to laser quality and the material is scatter-free. Three different materials are offered: BK7 optical glass is good for most visible applications but for use in the UV or near IR fused silica is recommended. Ealing offers a standard, high quality fused silica which will meet most requirements or a fluorescence-free UV fused silica which can be used with

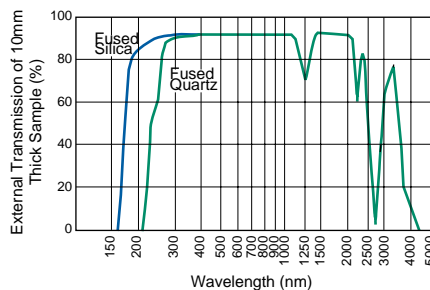
confidence for excimer laser wavelengths down to 190 nm.

Both parallel sided and wedged windows are available. The wedged windows reduce the impact of reflections from the second face of the window. All windows are stocked uncoated but they may be coated with a broadband or laser line anti-reflection coating. To order a coated window simply append the appropriate coating suffix to the catalog number.

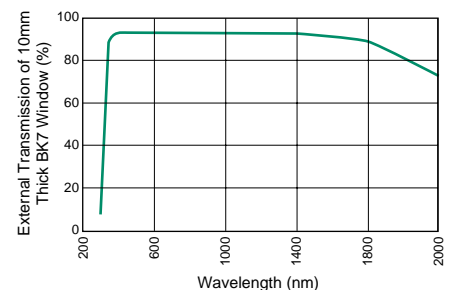
Fused Quartz and Silica Refractive index versus λ

λ (nm)	Index
214.4	1.53372
248.3	1.50840
265.2	1.50000
302.2	1.48719
334.1	1.47976
365.0	1.47454
404.7	1.47962
435.8	1.46669
486.1	1.46313
546.1	1.46008
587.6	1.45846
656.3	1.45637
852.1	1.45247
1014.0	1.45024
1530.0	1.44427
1970.0	1.43852
2325.4	1.43293

Abbe Number Vd: 67.8
Density: 2.203 g/cm³
Softening Point: 1730°C
Annealing Point: 1180°C
Specific Heat: 0.76 J/g/K at 20°C
Thermal Conductivity: 1.39 W/m/K
Thermal Expansion: 0.55 x 10⁻⁶ /°C
Youngs Modulus: 72.8 x 10³ N/mm²
Hardness: 5-7 mohs



Transmittance of Fused Silica and Fused Quartz



Transmittance of BK7 Glass

Optics

Lenses & Microscope Components

Coatings

Mirrors, Beamsplitters & Windows

Prisms & Polarizers

Filters

Pinholes

Opto-mechanics

Tables, Breadboards & Rails

Mounting Hardware

Mirror & Component Mounts

Manual Micro-positioners

Motorized Positioners

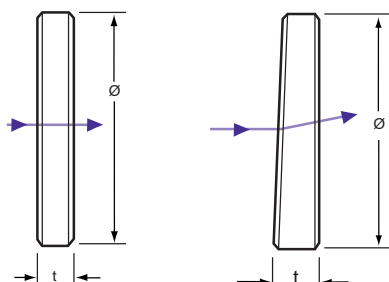
Lasers & Accessories

Beam Delivery

Laser Measurement

Diode Laser Modules

Laser Windows – Parallel Sided



Parallel

Wedged

Diameter, Ø (mm)	Thickness, t (mm)	BK7		Fused Silica		Fluorescence Free UV Fused Silica	
		Catalog Number	Price US	Catalog Number	Price US	Catalog Number	Price US
5.0	3.0	45-1526	\$40.00	45-1336	\$50.00	45-1146	\$60.00
10.0	6.0	45-1534	\$49.00	45-1344	\$59.00	45-1153	\$68.00
12.7	6.0	45-1542	\$49.00	45-1351	\$59.00	45-1161	\$68.00
15.0	6.0	45-1559	\$49.00	45-1369	\$59.00	45-1179	\$68.00
19.1	6.0	45-1567	\$58.00	45-1377	\$68.00	45-1187	\$78.00
20.0	6.0	45-1575	\$58.00	45-1385	\$68.00	45-1195	\$78.00
25.0	6.0	45-1583	\$68.00	45-1393	\$78.00	45-1203	\$110.00
25.4	6.0	45-1591	\$68.00	45-1401	\$78.00	45-1211	\$110.00
30.0	6.0	45-1609	\$73.00	45-1419	\$93.00	45-1229	\$149.00
38.1	10.0	45-1617	\$88.00	45-1427	\$120.00	45-1237	\$225.00
40.0	10.0	45-1625	\$88.00	45-1435	\$120.00	45-1245	\$250.00
50.0	10.0	45-1633	\$121.00	45-1443	\$148.00	45-1252	\$410.00
50.8	10.0	45-1641	\$121.00	45-1450	\$148.00	45-1260	\$410.00

Laser Windows – Wedged

Diameter, Ø (mm)	Thickness, t (mm)	BK7		Fused Silica		Fluorescence Free UV Fused Silica	
		Catalog Number	Price US	Catalog Number	Price US	Catalog Number	Price US
5.0	3.0	45-0957	\$48.00	45-0767	\$58.00	45-0577	\$62.00
10.0	6.0	45-0965	\$55.00	45-0775	\$65.00	45-0585	\$69.00
12.7	6.0	45-0973	\$55.00	45-0783	\$65.00	45-0593	\$72.00
15.0	6.0	45-0981	\$55.00	45-0791	\$65.00	45-0601	\$85.00
19.1	6.0	45-0999	\$62.00	45-0809	\$75.00	45-0619	\$95.00
20.0	6.0	45-1005	\$62.00	45-0817	\$75.00	45-0627	\$110.00
25.0	6.0	45-1013	\$72.00	45-0825	\$82.00	45-0635	\$125.00
25.4	6.0	45-1021	\$72.00	45-0833	\$82.00	45-0643	\$125.00
30.0	6.0	45-1039	\$84.00	45-0841	\$99.00	45-0650	\$160.00
38.1	10.0	45-1047	\$93.00	45-0858	\$115.00	45-0668	\$295.00
40.0	10.0	45-1054	\$93.00	45-0866	\$115.00	45-0676	\$315.00
50.0	10.0	45-1062	\$135.00	45-0874	\$172.00	45-0684	\$450.00
50.8	10.0	45-1070	\$135.00	45-0882	\$172.00	45-0692	\$450.00

Specifications

Material

- BK7:** BK7 grade A optical glass
- Fused Silica:** Dynasil 4000 or equivalent
- Fluorescence free UV FS:** Corning 7980 Excimer grade

Diameter Tolerance: +0 -0.2 mm

Clear Aperture: 90% diameter

Flatness: $\lambda/10$

Wedge (wedged windows): 30 \pm 5 arcmin

Parallelism (parallel windows): <30 arc sec

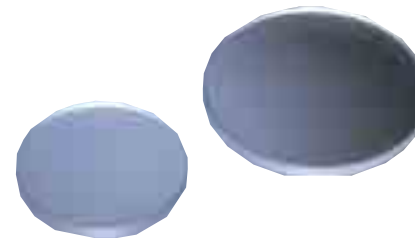
Surface Quality: 10-5

Edges: Fine ground

Uncoated

Calcium Fluoride Windows

- UV and IR transmission
- Low refractive index



Calcium fluoride is a crystal which has very good transmission from 150 nm to 8 μ m. It has a low refractive index (about 1.4) eliminating the need for antireflection coatings. However, it is slightly soluble in water and is susceptible to thermal shock.

Specifications

- Material:** Calcium fluoride
- Diameter Tolerance:** +0 -0.13 mm
- Thickness Tolerance:** \pm 0.1 mm
- Wedge Angle:** <3 arcmin
- Surface Accuracy:** 2 λ at 633 nm
- Surface Quality:** 60-40
- Uncoated**

Calcium Fluoride Windows

Catalog Number	Diameter, Ø (mm)	Thickness, t (mm)	Price US
36-1733	12.7	3.0	\$50.00
36-1741	25.4	3.0	\$70.00
36-1782	38.1	4.0	\$89.00
36-1790	50.8	4.0	\$103.00
36-1808	76.2	6.4	\$205.00

Optics

Lenses & Microscope Components

Coatings

Mirrors, Beamsplitters & Windows

Prisms & Polarizers

Filters

Pinholes

Opto-mechanics

Tables, Breadboards & Rails

Mounting Hardware

Mirror & Component Mounts

Manual Micro-positioners

Motorized Positioners

Lasers & Accessories

Beam Delivery

Laser Measurement

Diode Laser Modules