

## OPTICS

# WINDOWS

Windows are used to isolate different physical environments while allowing light to pass. When selecting windows you should consider the following properties, transmission, scattering, wavefront distortion, parallelism and resistance to certain environment. JAYBAO offers a wide range of different materials and different degree of precision windows. Special materials are available upon request.

JAYBAO provides varieties of single layer or multilayer anti-reflecting coating on optical windows. Please refer to the Coating chapter for more information.



## WINDOW MATERIAL PROPERTIES

MATERIAL	PROPERTIES	APPLICATION
<b>BK7</b>	Transmission Range: 330-2100nm Refractive Index: 1.5164@588nm	Better performance over visible and near IR spectrum for most application
<b>Fused Silica</b>	Transmission Range: 185-2500nm Refractive Index: 1.4858@ 308nm Low Thermal Expansion Coefficient: $0.54 \times 10^{-6}K$	Better performance from UV to IR spectrum. Also, it is the best choice for resistance thermal application.
<b>Sapphire</b>	Transmission Range: 180-4500nm Refractive Index: 1.755@1000nm	Suit for scratch resistance application with better transmission over the wide range spectrum.
<b>Calcium Fluoride</b>	Transmission Range: 170-7800nm Refractive Index: 1.399@5000nm	It is applicable for wide range spectrum and useful for IR laser application.
<b>Magnesium Fluoride</b>	Transmission Range: 170-7800nm Refractive Index: 1.399@5000nm Little Hygroscopic Susceptibility High Thermal Expansion Coefficient: $18.85 \times 10^{-6}K$	It is applicable for wide rang spectrum, and it is particularly useful for IR laser application.



# BK7 WINDOWS

## HIGH PRECISION BK7 WINDOWS.

### Specifications:

Material ..... BK7 grade A optical glass  
 Diameter Tolerance ..... +0.0, -0.1mm  
 Thickness Tolerance ..... ±0.2mm  
 Clear Aperture ..... >80%  
 Parallelism ..... see the table  
 Surface Quality ..... 20-10 scratch and dig  
 Wavefront Distortion .....  $\lambda / 10$  per 25mm at 632.8nm  
 Protective Bevel



1' Parallelism	10" Parallelism	Ø(mm)	T(mm)
Item No.	Item No.		
BWH0101	BWH1011	10.0	6.0
BWH0102	BWH1012	12.7	6.0
BWH0103	BWH1013	25.0	6.0
BWH0104	BWH1014	25.4	6.35
BWH0105	BWH1015	30.0	6.0

\*Other sizes and coating are available upon request.

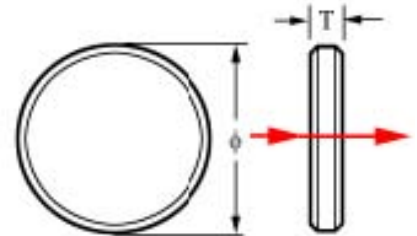
OPTICS

# BK7 WINDOWS

## STANDARD BK7 WINDOWS

### Specifications:

- Material ..... BK7 grade A optical glass
- Diameter Tolerance ..... +0.0, -0.1mm
- Thickness Tolerance..... ±0.2mm
- Clear Aperture ..... >80%
- Parallelism ..... 1arc minute
- Surface Quality ..... 60-40 scratch and dig
- Wavefront Distortion .....  $\lambda/4$  per 25mm at 632.8nm
- Protective Bevel



Item No.	Ø(mm)	T(mm)
BWS0106	10.0	3.0
BWS0107	12.7	3.0
BWS0108	15.0	1.0
BWS0109	15.0	3.0
BWS0110	25.0	3.0
BWS0111	25.4	3.0
BWS0112	30.0	3.0
BWS0113	50.0	3.0
BWS0114	50.8	6.35

\*Other sizes and coating are available upon request.



# FUSED SILICA WINDOWS

## HIGH PRECISION FUSED SILICA WINDOWS

### Specifications:

Material ..... UV grade fused silica  
 Diameter Tolerance ..... +0.0, -0.1mm  
 Thickness Tolerance ..... ±0.2mm  
 Clear Aperture ..... >80%  
 Parallelism ..... see the table  
 Surface Quality ..... 20-10 scratch and dig  
 Wavefront Distortion .....  $\lambda/10$  per 25mm at 632.8nm  
 Protective Bevel



1' Parallelism	10" Parallelism	Ø(mm)	T(mm)
Item No.	Item No.		
FWH0101	FWH1011	10.0	6.0
FWH0102	FWH1012	12.7	6.0
FWH0103	FWH1013	25.0	6.0
FWH0104	FWH1014	25.4	6.35
FWH0105	FWH1015	30.0	6.0

\*Other sizes and coating are available upon request.

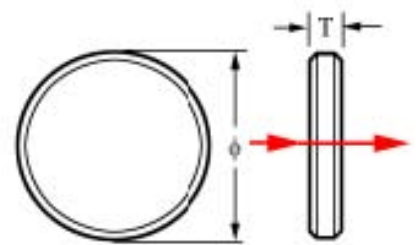


# FUSED SILICA WINDOWS

## STANDARD FUSED SILICA WINDOWS

### Specifications:

- Material ..... UV grade fused silica
- Diameter Tolerance ..... +0.0, -0.1mm
- Thickness Tolerance .....  $\pm 0.2$ mm
- Clear Aperture ..... >80%
- Parallelism ..... 1arc minute
- Surface Quality ..... 60-40 scratch and dig
- Wavefront Distortion .....  $\lambda/4$  per 25mm
- Protective Bevel



Item No.	Ø(mm)	T(mm)
FWS0106	10.0	3.0
FWS0107	12.7	3.0
FWS0108	25.0	3.0
FWS0109	25.4	3.0
FWS0110	30.0	3.0
FWS0111	50.0	3.0

\*Other sizes and coating are available upon request



# SAPPHIRE WINDOWS

## Specifications:

**Material** ..... Anisotropic synthetic sapphire crystal ( $Al_2O_3$ )  
**Orientation** ..... Random  
**Diameter Tolerance** ..... +0.0, -0.1mm  
**Thickness Tolerance** .....  $\pm 0.2$ mm  
**Clear Aperture** ..... >80%  
**Parallelism** ..... 3 arc minutes  
**Surface Quality** ..... 120-80 scratch and dig  
**Flatness** .....  $2\lambda$  per 25mm at 633nm  
**Protective Bevel**



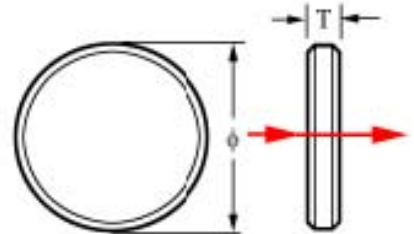
Item No.	Ø(mm)	T(mm)
SW0101	8.0	0.5
SW0102	8.0	0.9
SW0103	12.0	1.0
SW0104	25.0	1.0



# CALCIUM FLUORIDE WINDOWS

## Specifications:

Material ..... Calcium Fluoride single crystal  
Diameter Tolerance ..... +0.0, -0.1mm  
Thickness Tolerance..... ±0.2mm  
Clear Aperture ..... >80%  
Parallelism ..... 1arc minute  
Flatness .....  $\lambda/2$  per 25mm at 632.8 nm  
Surface quality ..... 80-50 scratch and dig  
Protective Bevel



Item No.	Ø(mm)	T(mm)
CFW0101	12.7	2.0
CFW0102	25.4	3.0

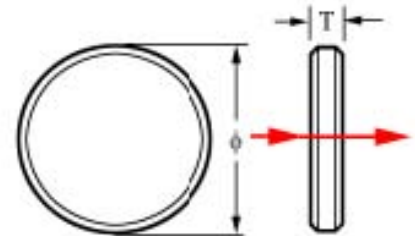
\*Other sizes and coating are available upon request.



# MAGNESIUM FLUORIDE WINDOWS

## Specifications:

- Material ..... Magnesium Fluoride single crystal
- Diameter Tolerance ..... +0.0, -0.1mm
- Thickness Tolerance .....  $\pm 0.2$ mm
- Clear Aperture ..... >80%
- Parallelism ..... 1 arc minute
  
- Flatness .....  $\lambda/2$  per 25mm at 632.8 nm
- Surface quality ..... 40-20 scratch and dig
- Protective Bevel



Item No.	$\varnothing$ (mm)	T(mm)
MFW0101	25.4	3.0

\*Other sizes and coating are available upon request.

## WINDOW MATERIAL PROPERTIES

