

The below listed substrates and windows, available in stock, are produced from most frequently used materials BK-7 and UVFS.

BK-7 is an excellent low-cost material for substrates of laser mirrors and laser quality-windows to be used in the visible or NIR regions from 400 to 2000 nm.

UVFS is commonly used for the UV region, starting from 190 nm. Furthermore, fused silica, with a low thermal expansion ratio, is commonly used for production of optical parts that are operative under thermal cycling conditions. If you need any windows or laser mirrors on the substrates from other materials listed in section "OPTICAL MATERIALS", please, contact SOLAR LS.

This section presents substrates to be used for laser quality-windows with no anti-reflection coatings and for anti-reflection-coated windows, as well as substrates that are used for applications of high-power laser mirror coatings.

Flat/flat substrates, can be used, in their turn, in a variety of applications. *Substrates with a wedge about 3'* have one high-quality polished side (SF $\lambda/10$; SQ 20-10) and are normally used for application of high-reflection coatings. In this connection, the requirements to the treatment of the other side are somewhat lower (SF $\lambda/2$; SQ 60-40). *Substrates with a wedge about 10''* - plane-parallel windows - have both high-quality polished sides; they are used for partially reflecting mirrors, beamsplitters, dichroic mirrors and anti-reflection coated windows in each case when the angular deflection of the propagating beam should be minimum. At the expense of a small compromise in surface flatness (reduction to SF $\lambda/8$), thin substrates (4 mm thick for 50 mm diameter and 3 mm thick for 25 and 30 mm diameters) that are cumbersome in production, but sometimes more convenient in many of the above applications, were also included into the Catalog.

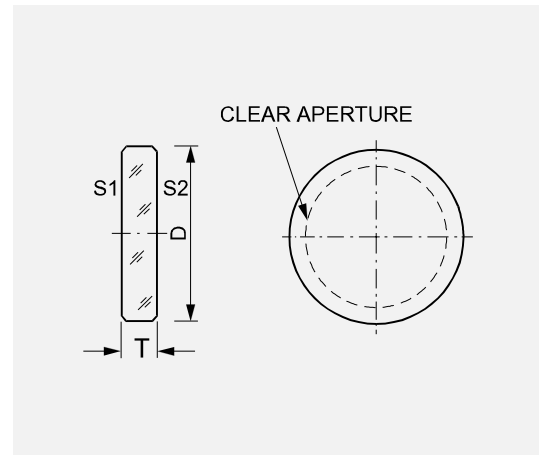
Plano-convex and plano-concave substrates from this Catalog are normally used for application of high-reflecting coatings, therefore the requirements to treatment of their flat sides are somewhat lower (SF $\lambda/4$; SQ 60-40). When it is necessary to apply a high-power partially-reflecting coating, you may choose the required substrate from lenses (section "LENSES"), whose both sides are high-quality treated, or you may specify the treatment parameters required for any of the available substrates or you may also order a substrate with any other non-specified in the Catalog dimensions, curvature radius and treatment parameters.

Large Wedge Windows - high-quality 1° or 3°-wedged laser windows - are used for substrates for partially - reflecting mirrors and beamsplitters to provide even better protection, than plane-parallel windows, against radiation, re-reflected by the other side. They can be also used, as low-power prisms, in beam-steering applications. A couple of identical large wedge windows, that can be rotated around their own axes, when arranged adequately, form an adjustable beamsteering wedge. This wedge can be used to produce a deflection angle, variable from 0 degree to the doubled displacement angle of the beam of one of the prisms.

Brewster windows, adequately arranged towards the polarized beam, virtually, introduce no losses. Furthermore, they are convenient substrates for High-Power Thin-Film Polarizers (Section 6 "POLARIZING OPTICS").

SPECIFICATIONS

Material	BK7, UV Fused Silica, Fused Silica or others (IR Fused Silica, MgF ₂ , CaF ₂ , Sapphire, etc. upon request)
Surface Figure	(refer to the table below)
Surface Quality	(refer to the table below)
Wedge(parallelism)	(refer to the table below)
Diameter Tolerance	+0.0 mm; -0.15 mm
Thickness Tolerance	±0.2 mm
Clear Aperture	90% of diameter
Chamfer	0.5 mm at 45°



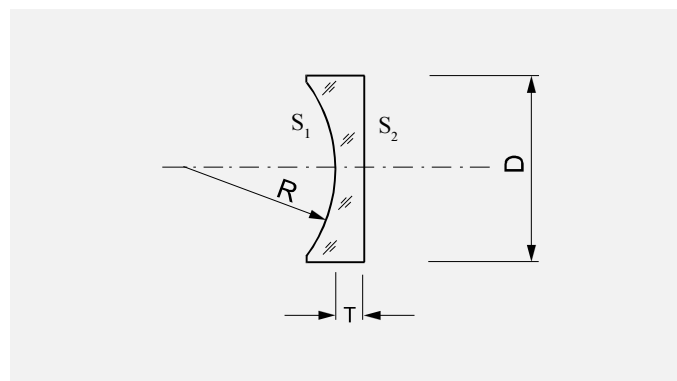
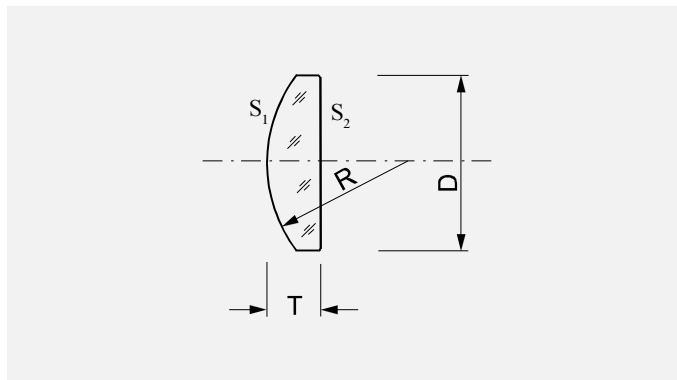
ORDERING INFORMATION

Part №		Thickness (mm)	Surface S1		Surface S2		Wedge
BK7	UVFS		SF	SQ	SF	SQ	
Diameter 25 mm							
FF0252	FF1252	6	λ/10	20-10	λ/2	60-40	5'
FF0254	FF1254	6	λ/10	20-10	λ/10	20-10	10''
FF0255	FF1255	3	λ/8	20-10	λ/8	20-10	10''
Diameter 30 mm							
FF0302	FF1302	6	λ/10	20-10	λ/2	60-40	5'
FF0304	FF1304	6	λ/10	20-10	λ/10	20-10	10''
FF0305	FF1305	3	λ/8	20-10	λ/8	20-10	10''
Diameter 50 mm							
FF0502	FF1502	8	λ/10	20-10	λ/2	60-40	5'
FF0504	FF1504	8	λ/10	20-10	λ/10	20-10	10''
FF0505	FF1505	4	λ/8	20-10	λ/8	20-10	10''

Substrates with other forms, dimensions and parameters can be manufactured upon request.

SPECIFICATIONS

Material	BK7; UV Fused Silica
Surface S_1 :	
Surface Figure	$\lambda/10$
Surface Quality	20-10
Surface S_2 :	
Surface Figure	$\lambda/4$ (SF: $\lambda/10$ upon request)
Surface Quality	60-40 (SQ: 20-10 upon request)
Diameter Tolerance	+0.0 mm; -0.15 mm
Thickness Tolerance	± 0.2 mm
Radius Tolerance	$\pm 2\%$
Clear Aperture	90% of diameter
Chamfer	0.5 mm at 45°
Centration	upon request



ORDERING INFORMATION

CONVEX SUBSTRATES			
Part №		Radius	Thickness
BK7	UVFS	R, (mm)	T, (mm)
Diameter 25 mm			
SX0252-10	SX1252-10	50	6
SX0252-20	SX1252-20	75	6
SX0252-30	SX1252-30	100	6
SX0252-40	SX1252-40	150	6
SX0252-50	SX1252-50	250	6
SX0252-60	SX1252-60	500	6
SX0252-70	SX1252-70	750	6
SX0252-75	SX1252-75	1000	6
SX0252-80	SX1252-80	2000	6
SX0252-85	SX1252-85	5000	6
SX0252-90	SX1252-90	8000	6
SX0252-95	SX1252-95	10000	6
Diameter 30 mm			
SX0302-20	SX1302-20	75	6
SX0302-30	SX1302-30	100	6
SX0302-40	SX1302-40	150	6
SX0302-50	SX1302-50	250	6
SX0302-60	SX1302-60	500	6
SX0302-70	SX1302-70	750	6
SX0302-75	SX1302-75	1000	6
SX0302-80	SX1302-80	2000	6
SX0302-85	SX1302-85	5000	6
SX0302-90	SX1302-90	8000	6
SX0302-95	SX1302-95	10000	6
Diameter 50 mm			
SX0502-30	SX1502-30	100	8
SX0502-40	SX1502-40	150	8
SX0502-50	SX1502-50	250	8
SX0502-60	SX1502-60	500	8
SX0502-70	SX1502-70	750	8
SX0502-75	SX1502-75	1000	8
SX0502-80	SX1502-80	2000	8
SX0502-85	SX1502-85	5000	8
SX0502-90	SX1502-90	8000	8
SX0502-95	SX1502-95	10000	8

Substrates with other forms, dimensions and parameters can be manufactured upon request.

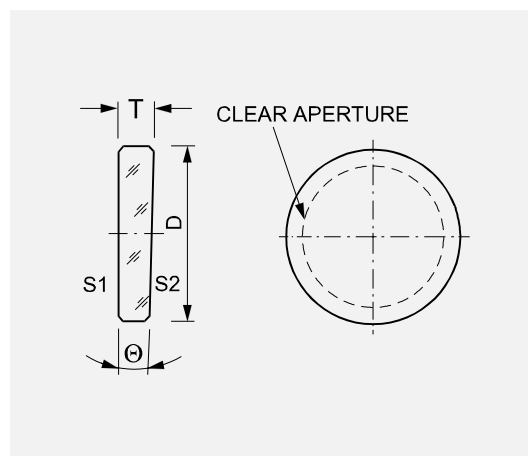
ORDERING INFORMATION

CONCAVE SUBSTRATES			
Part №		Radius	Thickness
BK7	UVFS	R, (mm)	T, (mm)
Diameter 25 mm			
SV0252-10	SV1252-10	-50	6
SV0252-20	SV1252-20	-75	6
SV0252-30	SV1252-30	-100	6
SV0252-40	SV1252-40	-150	6
SV0252-50	SV1252-50	-250	6
SV0252-60	SV1252-60	-500	6
SV0252-70	SV1252-70	-750	6
SV0252-75	SV1252-75	-1000	6
SV0252-80	SV1252-80	-2000	6
SV0252-85	SV1252-85	-5000	6
SV0252-90	SV1252-90	-8000	6
SV0252-95	SV1252-95	-10000	6
Diameter 30 mm			
SV0302-20	SV1302-20	-75	6
SV0302-30	SV1302-30	-100	6
SV0302-40	SV1302-40	-150	6
SV0302-50	SV1302-50	-250	6
SV0302-60	SV1302-60	-500	6
SV0302-70	SV1302-70	-750	6
SV0302-75	SV1302-75	-1000	6
SV0302-80	SV1302-80	-2000	6
SV0302-85	SV1302-85	-5000	6
SV0302-90	SV1302-90	-8000	6
SV0302-95	SV1302-95	-10000	6
Diameter 50 mm			
SV0502-30	SV1502-30	-100	8
SV0502-40	SV1502-40	-150	8
SV0502-50	SV1502-50	-250	8
SV0502-60	SV1502-60	-500	8
SV0502-70	SV1502-70	-750	8
SV0502-75	SV1502-75	-1000	8
SV0502-80	SV1502-80	-2000	8
SV0502-85	SV1502-85	-5000	8
SV0502-90	SV1502-90	-8000	8
SV0502-95	SV1502-95	-10000	8

Substrates with other forms, dimensions and parameters can be manufactured upon request.

SPECIFICATION

Material	BK7, UV Fused Silica, or others (IR Fused Silica, MgF ₂ , CaF ₂ , Sapphire, etc. upon request)
Surface Quality	20-10 (both sides)
Surface Figure	λ/10 (both sides)
Wedge	(refer to the table below)
Wedge Tolerance	± 5 arc min.
Diameter Tolerance	+0.0 mm; -0.15 mm
Thickness Tolerance	±0.2 mm
Clear Aperture	90% of diameter
Chamfer	0.5 mm at 45°



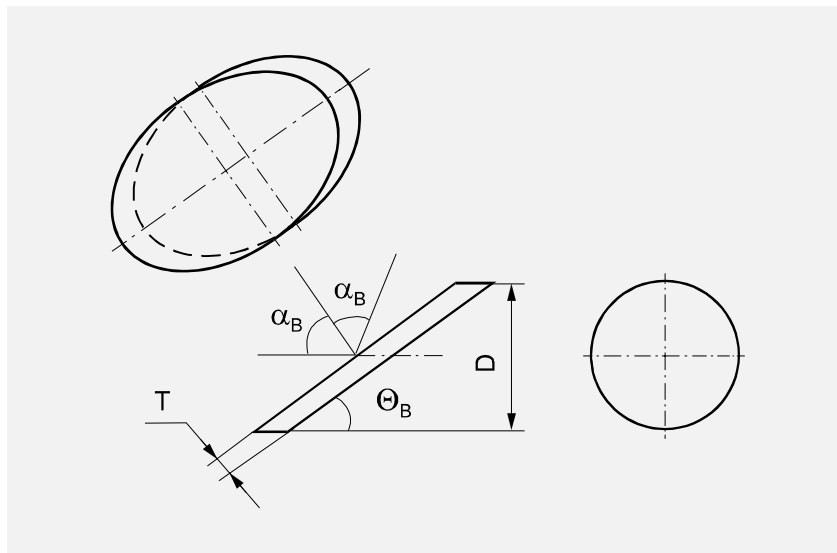
ORDERING INFORMATION

Part №		Thickness (mm)	Wedge Θ
BK7	UVFS		
Diameter 25 mm			
WL0254	WL1254	6	1°
WL0257	WL1257	6	3°
Diameter 30 mm			
WL0304	WL1304	6	1°
WL0307	WL1307	6	3°
Diameter 50 mm			
WL0504	WL1504	8	1°
WL0507	WL1507	8	3°

Substrates with other forms, dimensions and parameters can be manufactured upon request.

SPECIFICATION

Material	BK7, UV Fused Silica
Surface Figure	$\lambda/4$ (both sides)
Surface Quality	20-10 (both sides)
Diameter Tolerance	+0.0 mm; -0.15 mm
Thickness Tolerance	± 0.2 mm
Wedge	<10 arc seconds
Clear Aperture	Central 85% of diameter
Angle Θ_B	
for UVFS	$55^{\circ}50' \pm 30'$
for BK7	$56^{\circ}40' \pm 30'$
Chamfer	0.5 mm max



ORDERING INFORMATION

Part No		Minor Diameter	Thickness
BK7	UVFS	D (mm)	T (mm)
WB0204	WB1204	20	2
WB0304	WB1304	30	3
WB0404	WB1404	40	4

Brewster's angle α_B can be calculated by the formula:

$$\alpha_B = \arctan(n),$$

where n - refractive index of optical glass (see page 1-1)