

Wedged substrates can separate the reflected beam by the front and back surface of the substrates by the slight wedge angle.

They can be used as a reference test plate for interferometers and beam samplers.

- It can also be used as a prism to refract at a small angle. Beam deflection angle δ can be calculated refractive index n , from the wedge angle α .

$$\delta = \sin^{-1}(n \sin \alpha) - \alpha \doteq (n - 1) \alpha$$

- In BK7, 0.52 times the angle of the wedge, and in synthetic fused silica, 0.46 times the angle of the wedge. (Visible range, normal incidence)



Specifications

Material	BK7, Synthetic fused silica, Synthetic fused silica for excimer laser (248nm)
Clear aperture	90% of real diameter

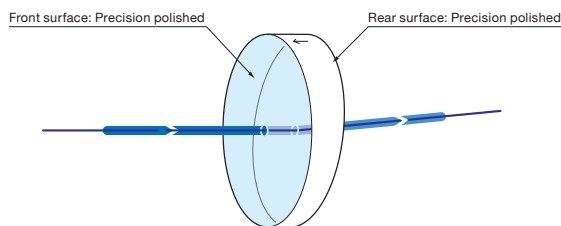
Guide

- An arrow mark on the thicker side of the edge indicates front surface of the substrate.
- It is also available beam sampler (BS4) coated with anti-reflection coating on the back.
- It is also available fabrication of the wedged substrates with a requested coating.

Attention

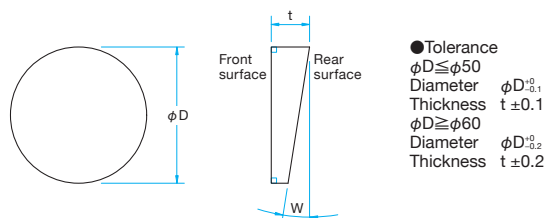
- Wedged substrates are not coated on both sides. There is a 3.5 to 4% reflection of the surface of the glass.
- If the wedged substrate is inserted in the optical path of the laser beam, the transmitted beam is inclined slightly causing the refraction.

Schematic



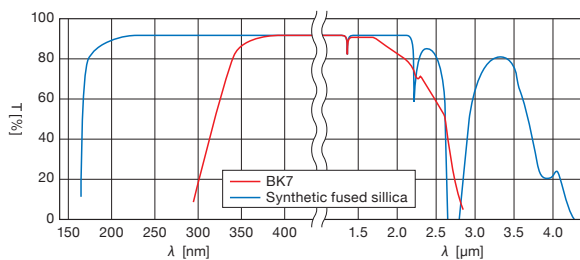
Outline Drawing

(in mm)

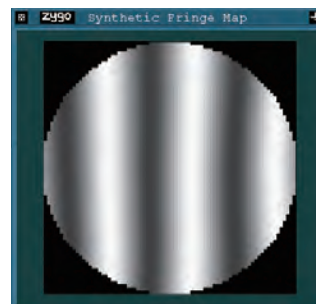


- Tolerance
- $\phi D \leq \phi 50$
Diameter $\phi D^{+0.1}$
Thickness $t \pm 0.1$
- $\phi D \geq \phi 60$
Diameter $\phi D^{+0.2}$
Thickness $t \pm 0.2$

Typical Transmittance Data T: Transmission



Surface Accuracy Data (reference data)



- Surface accuracy measurement method: Measured with Zygo laser interferometer
- Surface accuracy measurement wavelength 632.8nm
- Surface accuracy guaranteed temperature 23°C±2°C

Compatible Optic Mounts

MHG-MP20-NL, -MP25-NL, -MP30-NL / MHG-40MAD / MHG-MP50-NL / MHG-60MAD + MHG-MP80-NL / MHG-MP80-NL, -MP100-NL



BK7

Part Number	Diameter ϕ D [mm]	Thickness t [mm]	Surface flatness	Wedge angle W	Surface Quality (Scratch-Dig)
WSB-10C05-10-1	ϕ 10	5	$\lambda/10$	$1^{\circ}\pm 5'$	10-5
WSB-10C05-20-1	ϕ 10	5	$\lambda/20$	$1^{\circ}\pm 5'$	10-5
WSB-15C05-10-1	ϕ 15	5	$\lambda/10$	$1^{\circ}\pm 5'$	10-5
WSB-15C05-20-1	ϕ 15	5	$\lambda/20$	$1^{\circ}\pm 5'$	10-5
WSB-20C05-10-1	ϕ 20	5	$\lambda/10$	$1^{\circ}\pm 5'$	10-5
WSB-20C05-20-1	ϕ 20	5	$\lambda/20$	$1^{\circ}\pm 5'$	10-5
WSB-25C05-10-1	ϕ 25	5	$\lambda/10$	$1^{\circ}\pm 5'$	10-5
WSB-25C05-20-1	ϕ 25	5	$\lambda/20$	$1^{\circ}\pm 5'$	10-5
WSB-30C05-10-0.5	ϕ 30	5	$\lambda/10$	$0.5^{\circ}\pm 5'$	10-5
WSB-30C05-20-0.5	ϕ 30	5	$\lambda/20$	$0.5^{\circ}\pm 5'$	10-5
WSB-30C05-10-1	ϕ 30	5	$\lambda/10$	$1^{\circ}\pm 5'$	10-5
WSB-30C05-20-1	ϕ 30	5	$\lambda/20$	$1^{\circ}\pm 5'$	10-5
WSB-30C05-10-2	ϕ 30	5	$\lambda/10$	$2^{\circ}\pm 5'$	10-5
WSB-30C05-20-2	ϕ 30	5	$\lambda/20$	$2^{\circ}\pm 5'$	10-5
WSB-30C07-10-3	ϕ 30	7	$\lambda/10$	$3^{\circ}\pm 5'$	10-5
WSB-30C07-20-3	ϕ 30	7	$\lambda/20$	$3^{\circ}\pm 5'$	10-5
WSB-40C06-10-1	ϕ 40	6	$\lambda/10$	$1^{\circ}\pm 5'$	10-5
WSB-40C06-20-1	ϕ 40	6	$\lambda/20$	$1^{\circ}\pm 5'$	10-5
WSB-50C08-10-0.5	ϕ 50	8	$\lambda/10$	$0.5^{\circ}\pm 5'$	10-5
WSB-50C08-20-0.5	ϕ 50	8	$\lambda/20$	$0.5^{\circ}\pm 5'$	10-5
WSB-50C08-10-1	ϕ 50	8	$\lambda/10$	$1^{\circ}\pm 5'$	10-5
WSB-50C08-20-1	ϕ 50	8	$\lambda/20$	$1^{\circ}\pm 5'$	10-5
WSB-50C08-10-2	ϕ 50	8	$\lambda/10$	$2^{\circ}\pm 5'$	10-5
WSB-50C08-20-2	ϕ 50	8	$\lambda/20$	$2^{\circ}\pm 5'$	10-5
WSB-50C10-10-3	ϕ 50	10	$\lambda/10$	$3^{\circ}\pm 5'$	10-5
WSB-50C10-20-3	ϕ 50	10	$\lambda/20$	$3^{\circ}\pm 5'$	10-5
WSB-60C10-10-1	ϕ 60	10	$\lambda/10$	$1^{\circ}\pm 5'$	10-5
WSB-60C10-20-1	ϕ 60	10	$\lambda/20$	$1^{\circ}\pm 5'$	10-5
WSB-80C12-10-1	ϕ 80	12	$\lambda/10$	$1^{\circ}\pm 5'$	10-5
WSB-80C12-20-1	ϕ 80	12	$\lambda/20$	$1^{\circ}\pm 5'$	10-5
WSB-100C15-10-1	ϕ 100	15	$\lambda/10$	$1^{\circ}\pm 5'$	10-5
WSB-100C15-20-1	ϕ 100	15	$\lambda/20$	$1^{\circ}\pm 5'$	10-5

Synthetic fused silica

Part Number	Diameter ϕ D [mm]	Thickness t [mm]	Surface flatness	Wedge angle W	Surface Quality (Scratch-Dig)
WSSQ-10C05-10-1	ϕ 10	5	$\lambda/10$	$1^{\circ}\pm 5'$	20-10
WSSQ-10C05-20-1	ϕ 10	5	$\lambda/20$	$1^{\circ}\pm 5'$	20-10
WSSQ-15C05-10-1	ϕ 15	5	$\lambda/10$	$1^{\circ}\pm 5'$	20-10
WSSQ-15C05-20-1	ϕ 15	5	$\lambda/20$	$1^{\circ}\pm 5'$	20-10
WSSQ-20C05-10-1	ϕ 20	5	$\lambda/10$	$1^{\circ}\pm 5'$	20-10
WSSQ-20C05-20-1	ϕ 20	5	$\lambda/20$	$1^{\circ}\pm 5'$	20-10
WSSQ-25C05-10-1	ϕ 25	5	$\lambda/10$	$1^{\circ}\pm 5'$	20-10
WSSQ-25C05-20-1	ϕ 25	5	$\lambda/20$	$1^{\circ}\pm 5'$	20-10
WSSQ-30C05-10-0.5	ϕ 30	5	$\lambda/10$	$0.5^{\circ}\pm 5'$	20-10
WSSQ-30C05-20-0.5	ϕ 30	5	$\lambda/20$	$0.5^{\circ}\pm 5'$	20-10
WSSQ-30C05-10-1	ϕ 30	5	$\lambda/10$	$1^{\circ}\pm 5'$	20-10
WSSQ-30C05-20-1	ϕ 30	5	$\lambda/20$	$1^{\circ}\pm 5'$	20-10
WSSQ-30C05-10-2	ϕ 30	5	$\lambda/10$	$2^{\circ}\pm 5'$	20-10
WSSQ-30C05-20-2	ϕ 30	5	$\lambda/20$	$2^{\circ}\pm 5'$	20-10
WSSQ-30C07-10-3	ϕ 30	7	$\lambda/10$	$3^{\circ}\pm 5'$	20-10
WSSQ-30C07-20-3	ϕ 30	7	$\lambda/20$	$3^{\circ}\pm 5'$	20-10
WSSQ-40C06-10-1	ϕ 40	6	$\lambda/10$	$1^{\circ}\pm 5'$	20-10
WSSQ-40C06-20-1	ϕ 40	6	$\lambda/20$	$1^{\circ}\pm 5'$	20-10
WSSQ-50C08-10-0.5	ϕ 50	8	$\lambda/10$	$0.5^{\circ}\pm 5'$	20-10
WSSQ-50C08-20-0.5	ϕ 50	8	$\lambda/20$	$0.5^{\circ}\pm 5'$	20-10
WSSQ-50C08-10-1	ϕ 50	8	$\lambda/10$	$1^{\circ}\pm 5'$	20-10
WSSQ-50C08-20-1	ϕ 50	8	$\lambda/20$	$1^{\circ}\pm 5'$	20-10
WSSQ-50C08-10-2	ϕ 50	8	$\lambda/10$	$2^{\circ}\pm 5'$	20-10
WSSQ-50C08-20-2	ϕ 50	8	$\lambda/20$	$2^{\circ}\pm 5'$	20-10
WSSQ-50C10-10-3	ϕ 50	10	$\lambda/10$	$3^{\circ}\pm 5'$	20-10
WSSQ-50C10-20-3	ϕ 50	10	$\lambda/20$	$3^{\circ}\pm 5'$	20-10
WSSQ-60C10-10-1	ϕ 60	10	$\lambda/10$	$1^{\circ}\pm 5'$	20-10
WSSQ-60C10-20-1	ϕ 60	10	$\lambda/20$	$1^{\circ}\pm 5'$	20-10
WSSQ-80C12-10-1	ϕ 80	12	$\lambda/10$	$1^{\circ}\pm 5'$	20-10
WSSQ-80C12-20-1	ϕ 80	12	$\lambda/20$	$1^{\circ}\pm 5'$	20-10
WSSQ-100C15-10-1	ϕ 100	15	$\lambda/10$	$1^{\circ}\pm 5'$	20-10
WSSQ-100C15-20-1	ϕ 100	15	$\lambda/20$	$1^{\circ}\pm 5'$	20-10

Synthetic fused silica for excimer laser

Part Number	Diameter ϕ D [mm]	Thickness t [mm]	Surface flatness	Wedge angle W	Surface Quality (Scratch-Dig)
WSSQK-30C05-10-1	ϕ 30	5	$\lambda/10$	$1^{\circ}\pm 5'$	20-10
WSSQK-50C08-10-1	ϕ 50	8	$\lambda/10$	$1^{\circ}\pm 5'$	20-10

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