

# Right Angle Prisms | RPB/RPSQ

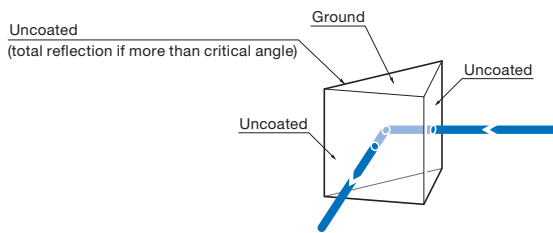
RoHS

Right angle prism which are not coated can be used in various applications, such as total internal reflection critical angle and wavelength dispersion. In addition, various coatings are available to produce a prism optical element at a specific wavelength(s) to meet the application needs of customers.

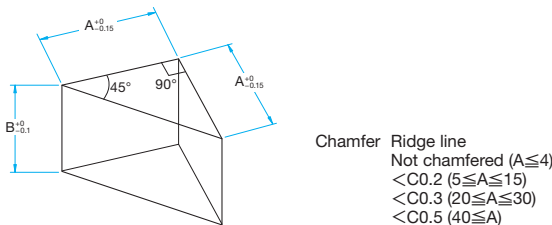
- The prisms are available made with synthetic quartz for use in the ultraviolet wavelength range and BK7 that can be used for visible to infrared range.
- With very high accuracy and precision angles of the prism surface, it can also be used directly bonded to machined parts.
- With many mounting methods right angle prisms are very useful as a substitute for a small mirror.



### Schematic



### Outline Drawing (in mm)



### Specifications

Material	BK7 (Refractive Index $n_d=1.517$ ) Synthetic fused silica (Refractive Index $n_d=1.458$ )
Clear aperture	90% of Circle or Ellipse to Actual dimension for entrance and exit surface

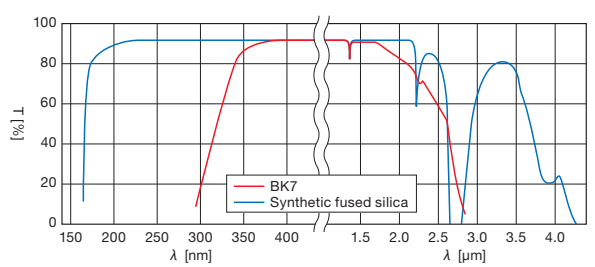
### Guide

- ▶ Contact our Sales Division with your request for custom prisms not listed on our website or in the catalog.
- ▶ Production of high-precision prism and high angle accuracy are also available.

### Attention

- ▶ A dimension measured is slightly shorter than the catalog size because it contains chamfer dimension. Dimensional tolerances are defined by the sides of the triangle with the slope and two bottom surface.
- ▶ Surface reflectance of the critical angle is nearly 100% reflection. However, the reflectivity of the surface that emits or incident on the glass has a loss of about 8 percent.
- ▶ Most of the light through the prism side, if the light is incident on the slopes from the air it will not be reflected only partially.
- ▶ In BK7, when the incident light at an angle of 41 degrees or less (less than the critical angle) from the side of the glass, it will not be a total reflection on the part of the light is transmitted through the air for the slope in BK7. In synthetic fused silica at an angle of incidence of 43 degrees or less (less than the critical angle) will not be a total internal reflection.
- ▶ Sometimes when dirt or fingerprints on the surface with no coating, total reflection will not happen anymore at the critical angle. Do not contact anything on the no coated surface.

### Typical Transmittance Data T: Transmission



### BK7 / Standard

Part Number	A = B [mm]	Surface flatness of substrate	Angle tolerance		Surface Quality (Scratch-Dig)
			90°	45°	
RPB-01-4M	1	$\lambda/4$	$\pm 1'$	$\pm 1'$	10-5
RPB-02-4M	2	$\lambda/4$	$\pm 1'$	$\pm 1'$	10-5
RPB-03-4M	3	$\lambda/4$	$\pm 1'$	$\pm 1'$	10-5
RPB-04-4M	4	$\lambda/4$	$\pm 1'$	$\pm 1'$	10-5
RPB-05-4M	5	$\lambda/4$	$\pm 1'$	$\pm 1'$	10-5
RPB-07-4M	7	$\lambda/4$	$\pm 1'$	$\pm 1'$	10-5
RPB-10-4M	10	$\lambda/4$	$\pm 1'$	$\pm 1'$	10-5
RPB-12.7-4M	12.7	$\lambda/4$	$\pm 1'$	$\pm 1'$	10-5
RPB-15-4M	15	$\lambda/4$	$\pm 1'$	$\pm 1'$	10-5
RPB-20-4M	20	$\lambda/4$	$\pm 1'$	$\pm 1'$	10-5
RPB-25-4M	25	$\lambda/4$	$\pm 1'$	$\pm 1'$	10-5
RPB-25.4-4M	25.4	$\lambda/4$	$\pm 1'$	$\pm 1'$	10-5
RPB-30-4M	30	$\lambda/4$	$\pm 1'$	$\pm 1'$	10-5
RPB-40-4M	40	$\lambda/4$	$\pm 1'$	$\pm 1'$	10-5
RPB-50-4M	50	$\lambda/4$	$\pm 1'$	$\pm 1'$	10-5

### Compatible Optic Mounts

PLH / KKD / SHA

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45 Degrees Angle

Retro-reflectors

Equilateral Dispersing Prisms

Others



### BK7 / Simple

Part Number	A = B [mm]	Surface flatness of substrate	Angle tolerance		Surface Quality (Scratch-Dig)
			90°	45°	
RPB-01-2L	1	$\lambda/2$	$\pm 3'$	$\pm 3'$	20-10
RPB-02-2L	2	$\lambda/2$	$\pm 3'$	$\pm 3'$	20-10
RPB-03-2L	3	$\lambda/2$	$\pm 3'$	$\pm 3'$	20-10
RPB-04-2L	4	$\lambda/2$	$\pm 3'$	$\pm 3'$	20-10
RPB-05-2L	5	$\lambda/2$	$\pm 3'$	$\pm 3'$	20-10
RPB-07-2L	7	$\lambda/2$	$\pm 3'$	$\pm 3'$	20-10
RPB-10-2L	10	$\lambda/2$	$\pm 3'$	$\pm 3'$	20-10
RPB-15-2L	15	$\lambda/2$	$\pm 3'$	$\pm 3'$	20-10
RPB-20-2L	20	$\lambda/2$	$\pm 3'$	$\pm 3'$	20-10
RPB-25-2L	25	$\lambda/2$	$\pm 3'$	$\pm 3'$	20-10
RPB-30-2L	30	$\lambda/2$	$\pm 3'$	$\pm 3'$	20-10
RPB-40-2L	40	$\lambda/2$	$\pm 3'$	$\pm 3'$	20-10
RPB-50-2L	50	$\lambda/2$	$\pm 3'$	$\pm 3'$	20-10

### BK7 / High-precision

Part Number	A = B [mm]	Surface flatness of substrate	Angle tolerance		Surface Quality (Scratch-Dig)
			90°	45°	
RPB-05-10H	5	$\lambda/10$	$\pm 5''$	$\pm 30''$	10-5
RPB-07-10H	7	$\lambda/10$	$\pm 5''$	$\pm 30''$	10-5
RPB-10-10H	10	$\lambda/10$	$\pm 5''$	$\pm 30''$	10-5
RPB-15-10H	15	$\lambda/10$	$\pm 5''$	$\pm 30''$	10-5
RPB-20-10H	20	$\lambda/10$	$\pm 5''$	$\pm 30''$	10-5
RPB-25-10H	25	$\lambda/10$	$\pm 5''$	$\pm 30''$	10-5
RPB-30-10H	30	$\lambda/10$	$\pm 5''$	$\pm 30''$	10-5
RPB-40-10H	40	$\lambda/10$	$\pm 5''$	$\pm 30''$	10-5
RPB-50-10H	50	$\lambda/10$	$\pm 5''$	$\pm 30''$	10-5

### Synthetic fused silica / Standard

Part Number	A = B [mm]	Surface flatness of substrate	Angle tolerance		Surface Quality (Scratch-Dig)
			90°	45°	
RPSQ-05-4M	5	$\lambda/4$	$\pm 1'$	$\pm 1'$	10-5
RPSQ-07-4M	7	$\lambda/4$	$\pm 1'$	$\pm 1'$	10-5
RPSQ-10-4M	10	$\lambda/4$	$\pm 1'$	$\pm 1'$	10-5
RPSQ-12.7-4M	12.7	$\lambda/4$	$\pm 1'$	$\pm 1'$	10-5
RPSQ-15-4M	15	$\lambda/4$	$\pm 1'$	$\pm 1'$	10-5
RPSQ-20-4M	20	$\lambda/4$	$\pm 1'$	$\pm 1'$	10-5
RPSQ-25-4M	25	$\lambda/4$	$\pm 1'$	$\pm 1'$	10-5
RPSQ-25.4-4M	25.4	$\lambda/4$	$\pm 1'$	$\pm 1'$	10-5
RPSQ-30-4M	30	$\lambda/4$	$\pm 1'$	$\pm 1'$	10-5

### Synthetic fused silica / Simple

Part Number	A = B [mm]	Surface flatness of substrate	Angle tolerance		Surface Quality (Scratch-Dig)
			90°	45°	
RPSQ-05-2L	5	$\lambda/2$	$\pm 3'$	$\pm 3'$	20-10
RPSQ-07-2L	7	$\lambda/2$	$\pm 3'$	$\pm 3'$	20-10
RPSQ-10-2L	10	$\lambda/2$	$\pm 3'$	$\pm 3'$	20-10
RPSQ-15-2L	15	$\lambda/2$	$\pm 3'$	$\pm 3'$	20-10
RPSQ-20-2L	20	$\lambda/2$	$\pm 3'$	$\pm 3'$	20-10
RPSQ-25-2L	25	$\lambda/2$	$\pm 3'$	$\pm 3'$	20-10
RPSQ-30-2L	30	$\lambda/2$	$\pm 3'$	$\pm 3'$	20-10
RPSQ-40-2L	40	$\lambda/2$	$\pm 3'$	$\pm 3'$	20-10
RPSQ-50-2L	50	$\lambda/2$	$\pm 3'$	$\pm 3'$	20-10

### Synthetic fused silica / High-precision

Part Number	A = B [mm]	Surface flatness of substrate	Angle tolerance		Surface Quality (Scratch-Dig)
			90°	45°	
RPSQ-05-10H	5	$\lambda/10$	$\pm 5''$	$\pm 30''$	10-5
RPSQ-07-10H	7	$\lambda/10$	$\pm 5''$	$\pm 30''$	10-5
RPSQ-10-10H	10	$\lambda/10$	$\pm 5''$	$\pm 30''$	10-5
RPSQ-15-10H	15	$\lambda/10$	$\pm 5''$	$\pm 30''$	10-5
RPSQ-20-10H	20	$\lambda/10$	$\pm 5''$	$\pm 30''$	10-5
RPSQ-25-10H	25	$\lambda/10$	$\pm 5''$	$\pm 30''$	10-5
RPSQ-30-10H	30	$\lambda/10$	$\pm 5''$	$\pm 30''$	10-5

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