

# Prisms

Prism is optical element with flat, polished surfaces that refract light. At least two of flat surface must have an angle between them. The exact angles between the surfaces depend on the application.

## Manufacturing capability of Prisms

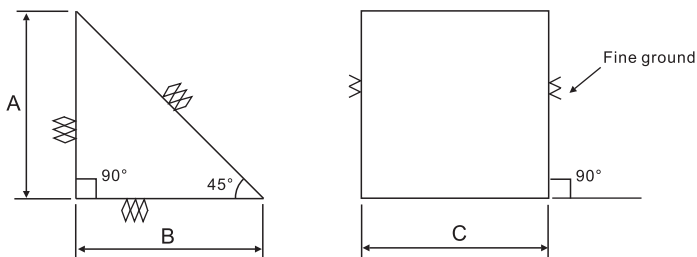
Dimensional tolerance	0.01mm
Surface quality	10-5 S/D
Angle tolerance	3 arcsec
Flatness	$\lambda/10$ @633nm

- \* Right angle Prisms
- \* Wedge Prisms
- \* Corner cube Retro-reflectors
- \* Roof Prisms
- \* Dove Prisms
- \* Penta Prisms
- \* Dispersive Prisms
- \* Rhomboid Prisms
- \* Abbe prisms
- \* Pellin-Broca prisms
- \* Amici prisms
- \* Porro prisms
- \* Schmidt Pechan prisms



## Right Angle Prisms

Right angle prisms are most popular of all prisms. Right angle prisms are used to deviate beam through  $90^\circ$ , when beam enters normal to right sides, and as also a retroreflector to deviate beam through  $180^\circ$  when beam enters normal to hypotenuse.



Dimensional tolerance:  $\pm 0.1\text{mm}$   
 Surface quality: 40-20 S/D  
 Flatness:  $\lambda/4@632.8\text{nm}$   
 Angular tolerance:  $\pm 3$  arcmin  
 Bevel: Protective

Item#	Material	Size(AxBxC)
PRA01-5.0	BK7	5.0x5.0x5.0
PRA01-10.0	BK7	10.0x10.0x10.0
PRA01-12.7	BK7	12.7x12.7x12.7
PRA01-15.0	BK7	15.0x15.0x15.0
PRA01-20.0	BK7	20.0x20.0x20.0
PRA01-25.4	BK7	25.4x25.4x25.4
PRA01-30.0	BK7	30.0x30.0x30.0
PRA01-38.0	BK7	38.0x38.0x38.0
PRA01-50.8	BK7	50.8x50.8x50.8

Item#	Material	Size(AxBxC)
PRA02-5.0	Fused silica	5.0x5.0x5.0
PRA02-10.0	Fused silica	10.0x10.0x10.0
PRA02-12.7	Fused silica	12.7x12.7x12.7
PRA02-15.0	Fused silica	15.0x15.0x15.0
PRA02-20.0	Fused silica	20.0x20.0x20.0
PRA02-25.4	Fused silica	25.4x25.4x25.4
PRA02-30.0	Fused silica	30.0x30.0x30.0
PRA02-38.0	Fused silica	38.0x38.0x38.0
PRA02-50.8	Fused silica	50.8x50.8x50.8

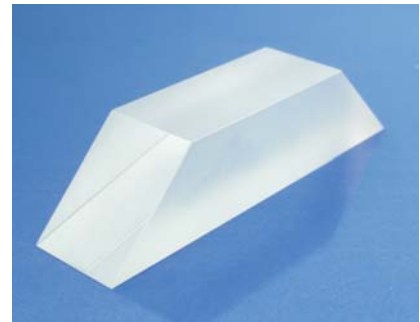
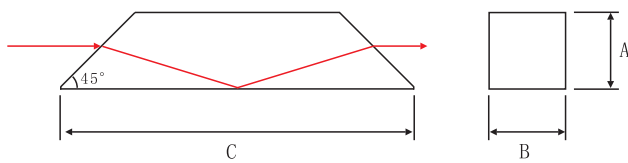
**Notes:**

- 1, The listed prisms are without coating, please contact us for coating.
- 2, Custom prisms are available upon request.

Price on request    Volume Discount    Custom Design

## Dove Prisms

Dove prisms can be used as an image rotator, the output image rotates through twice the angle that the prism rotates through. Dove prism also can be used as a retroreflectors.



Dimensional tolerance:  $\pm 0.1\text{mm}$   
Surface quality: 60-40 S/D  
Flatness:  $\lambda/2@632.8\text{nm}$   
Bevel: Protective bevel

Item #	Material	AXB	C
PDV01-10	BK7	10.0x10.0	42.2
PDV01-15	BK7	15.0x15.0	63.4
PDV01-20	BK7	20.0x20.0	84.5
PDV01-25	BK7	15.0x15.0	105.7

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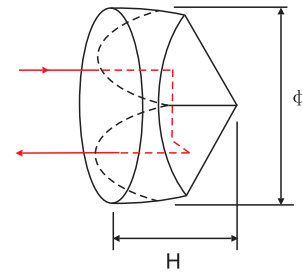
Custom  
Design

## Corner Retroreflectors

Corner cube retroreflector has three mutually orthogonal reflecting surfaces. The corner cube reflect any light rays back towards their source. The reflection angle  $180^\circ$  is independent of the orientation of the corner cube, making it ideal where precision alignment is difficult.

### General Specifications

Material	N-BK7
Dimensional tolerance	$\pm 0.1\text{mm}$
Surface quality	40-20 S/D
Surface flatness	$\lambda/4@632.8\text{nm}$
Bevel	Roof edges un-beveled, chip $< 0.1\text{mm}$ other edge Protective bevel



Choose Coatings:

Reflective surfaces: Protected Silver coating + Black paint

Front surface: Anti-reflective coating

Item#	Diameter	Height	Deviation
PCR1-12.7	Ø12.7	10.2	5"
PCR1-15.0	Ø15.0	11.4	5"
PCR1-25.4	Ø25.4	19.1	5"
PCR1-38.1	Ø38.1	29.1	5"
PCR1-50.8	Ø50.8	38.1	5"



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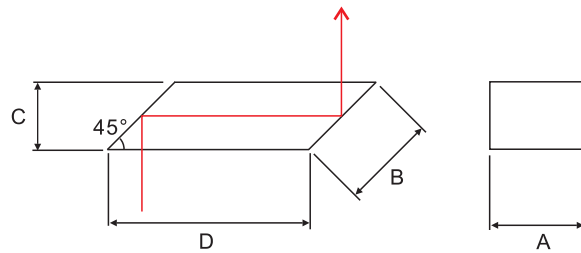
## Rhomboid Prisms

Rhomboid prism is used to displace a laser beam without changing its direction. The displacement is equal to the length of the prism.

### General Specifications

Material	N-BK7
Dimensional tolerance	$\pm 0.1\text{mm}$
Surface quality	60-40 S/D
Flatness	$\lambda/4@632.8\text{nm}$
Bevel	Protective bevel

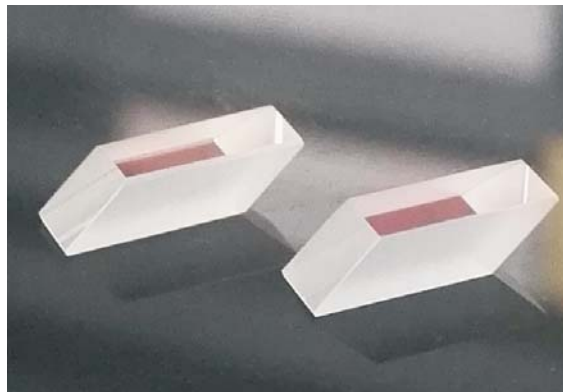
Parallelism of input and output beam: 30"



Item#	AXB	C	D
PRB1-5.0	5.0x5.0	3.5	7.1
PRB1-10.0	10.0x10.0	7.1	14.1
PRB1-15.0	15.0x15.0	10.5	21.2
PRB1-20.0	20.0x20.0	14.2	28.3
PRB1-25.0	25.0x25.0	17.7	35.4

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## Wedge Prisms

Wedge prism is used individually to deviate a beam through some specified angles. When used in pairs, the wedge prisms can steer a beam anywhere within a circle described by full angle  $4\alpha$ , where is the deviation from a single prism. The beam steering is accomplished by rotating the two wedge prisms independently of each other

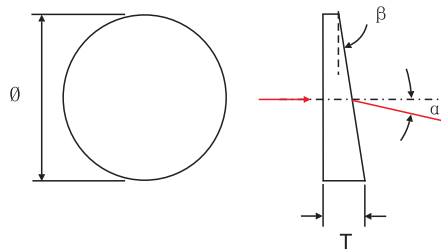
### General Specifications

Material	N-BK7
Design wavelength	632.8nm, n=1.51467
Dimensional tolerance	$\pm 0.1\text{mm}$
Surface quality	60-40
Flatness	$\lambda/4@632.8\text{nm}$
Wedge tolerance	$\pm 1$ arcmin
Thickness of thin edge	3.0mm
Bevel	Protective bevel

Item#	Diameter	Thickness	Deviation( $\alpha$ )	Wedge angle ( $\beta$ )
PWG1-1	$\varnothing 25.4$	3.86	1°	1°57'
PWG1-2	$\varnothing 25.4$	4.72	2°	3°53'
PWG1-4	$\varnothing 25.4$	6.43	4°	7°41'
PWG1-6	$\varnothing 25.4$	8.11	6°	11°21'
PWG1-8	$\varnothing 25.4$	9.74	8°	14°51'

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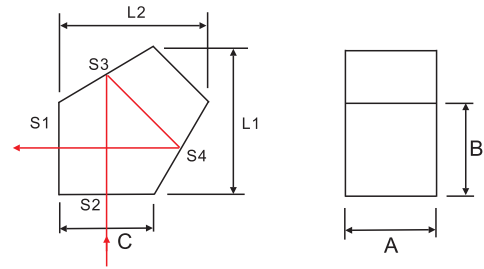
Custom  
Design

## Penta Prisms

Penta prisms are used to deviate an incident beam 90° independent of small positional changes of the prism with respect to the beam. The image is neither inverted nor reversed.

### General Specifications

Material	N-BK7
Dimensional tolerance	±0.1mm
Surface quality	60-40 S/D
Flatness	$\lambda/4@632.8\text{nm}$
Bevel	Protective bevel
Surface S1 & S2	Single layer MgF <sub>2</sub> coating
Surface S3 & S4	Aluminized and painted black



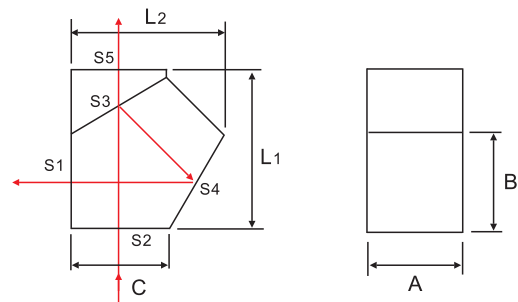
### Deviation 90° accuracy:

<10"	<15"	<30"	<1'
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Item#	AxBxC (mm)	L1=L2	Accuracy
PPT1-7	6x7x7	9.9	5"
PPT1-10	10x10x10	14.14	5"
PPT1-15	15x15x15	21.21	5"
PPT1-20	20x20x20	28.28	5"
PPT1-30	30x30x30	42.42	5"

## Beamsplitter Penta Prisms

Penta prisms are used to deviate an incident beam 90° independent of small positional changes of the prism with respect to the beam. The image is neither inverted nor reversed.



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Custom  
Design

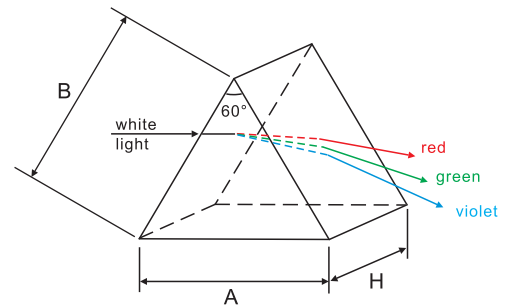
## Equilateral Dispersing Prisms

Equilateral prisms is an optics with polished surfaces. The three surfaces are  $60^\circ$  to each other, and are mostly used to disperse the spectrum, that is, to break light up into its spectral components (the colors of the rainbow). This dispersion occurs because the angle of refraction is dependent on the refractive index.

### General Specifications

Material N-SF11  
 Dimensional tolerance  $\pm 0.1\text{mm}$   
 Surface quality 60-40 S/D  
 Flatness  $\lambda/2@633\text{nm}$   
 Bevel Protective bevel

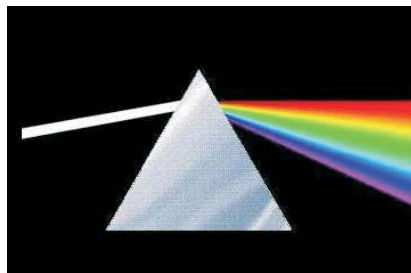
Three Angles:  $\theta = 60^\circ$   
 Angular tolerance: 3'



Item#	AxBxC (mm)	Thickness
PED1-15	15.0x15.0x15.0	15.0
PED1-20	20.0x20.0x20.0	20.0
PED1-25.4	25.4x25.4x25.4	25.4
PED1-38.1	38.1x38.1x38.1	38.1
PED1-50.8	50.8x50.8x50.8	50.8

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