

## Dielectric Cube Half Mirrors | DCHB

RoHS

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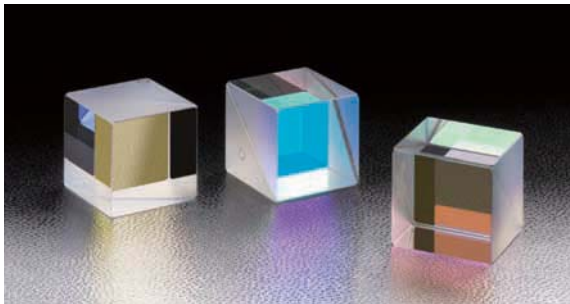
Substrates & Windows

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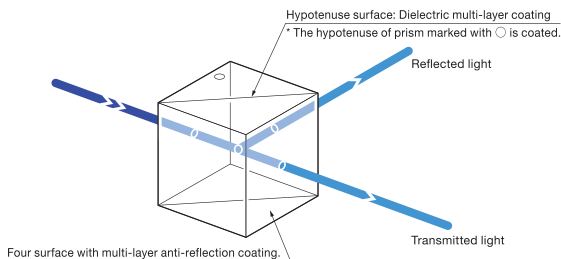
**Dielectric cube half mirrors consist of two right angle prisms.**

**One of them is coated with dielectric multi-layer partial reflection coating on the hypotenuse face.**

- Half mirror divides input beam to reflectance and transmittance at a 1:1 ratio. A beamsplitter with R:T (1:1 ratio) is called "Half Mirror".
- Four surfaces of the cube are coated with multi-layer anti-reflection coatings.
- The loss of input beam is minimized as there is no absorption from dielectric coating. However the reflection to transmission ratio of these dielectric cube half mirrors vary depending on wavelength, polarization and the incident angle of input beam. These higher refraction high mirrors show strong dependency.

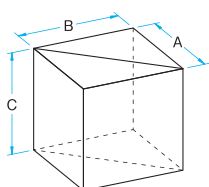


### Schematic



### Outline Drawing

(in mm)



- Tolerance
- A  $\pm 0.2$
- B  $\pm 0.2$
- C  $\pm 0.1$

### Specifications

Material	BK7
Surface flatness of substrate	$\lambda/4$
Beam Deviation	<5'
Coating	Hypotenuse surface: Dielectric multi-layer coating Four surfaces: Multi-layer anti-reflection coating
Incident angle	0°
Divergence ratio (reflectance : transmittance)	1 : 1
Polarization of the incident beam	Non-polarized beam 45 degrees direction of linearly polarization or circular polarization
Laser Damage Threshold	0.3J/cm <sup>2</sup> (Laser pulse width 10ns, repetition frequency 20Hz)
Surface Quality (Scratch-Dig)	20-10
Clear aperture	85% of circle to actual dimension (80% of actual aperture for 5 and 7mm dimension (A=B=C) products.)

### Guide

- ▶ Please contact our International Sales Division for customized products. (Customized on size, wavelength or R:T, etc.) [Reference](#) C063
- ▶ For a guarantee in reflected wavefront error or transmitted wavefront error, please contact our International Sales Division.

### Attention

- ▶ Input beam from the prism side is indicated by a ○. Reflection and refraction over wavelength will differ when light input is applied from the opposite side of the prism.
- ▶ The transmittance curves are based on actual measurements and may be different with manufacturing lots.
- ▶ The surface flatness is the reflected wavefront distortion of the surface before coating.
- ▶ Be sure to wear laser safety goggles when checking optical path and adjusting optical axis.

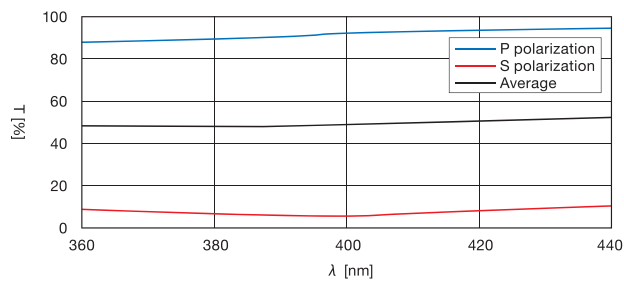
### Specifications

Part Number	Wavelength Range [nm]	A=B=C [mm]	Transmittance (The average value of the P-Polarization and the S-Polarization) [%]
<b>DCHB-10-405</b>	390 - 410	10	Average 50±3
<b>DCHB-15-405</b>	390 - 410	15	Average 50±3
<b>DCHB-20-405</b>	390 - 410	20	Average 50±3
<b>DCHB-25-405</b>	390 - 410	25	Average 50±3
<b>DCHB-30-405</b>	390 - 410	30	Average 50±3
<b>DCHB-05-550</b>	400 - 700	5	Average 50±5
<b>DCHB-07-550</b>	400 - 700	7	Average 50±5
<b>DCHB-10-550</b>	400 - 700	10	Average 50±5
<b>DCHB-15-550</b>	400 - 700	15	Average 50±5
<b>DCHB-20-550</b>	400 - 700	20	Average 50±5
<b>DCHB-25-550</b>	400 - 700	25	Average 50±5
<b>DCHB-30-550</b>	400 - 700	30	Average 50±5
<b>DCHB-40-550</b>	400 - 700	40	Average 50±5
<b>DCHB-50-550</b>	400 - 700	50	Average 50±5
<b>DCHB-05-800</b>	750 - 850	5	Average 50±5
<b>DCHB-07-800</b>	750 - 850	7	Average 50±5
<b>DCHB-10-800</b>	750 - 850	10	Average 50±5
<b>DCHB-15-800</b>	750 - 850	15	Average 50±5
<b>DCHB-20-800</b>	750 - 850	20	Average 50±5
<b>DCHB-25-800</b>	750 - 850	25	Average 50±5
<b>DCHB-30-800</b>	750 - 850	30	Average 50±5
<b>DCHB-10-1400</b>	1300 - 1550	10	Average 50±5
<b>DCHB-20-1400</b>	1300 - 1550	20	Average 50±5

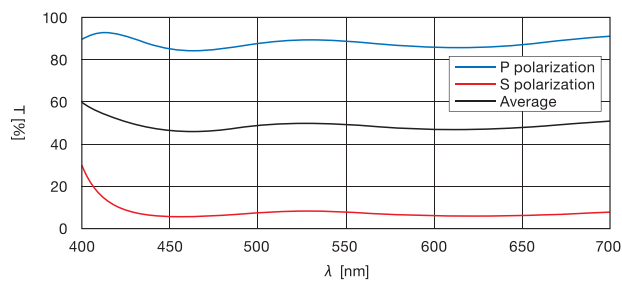
Typical Transmittance Data

T: Transmission

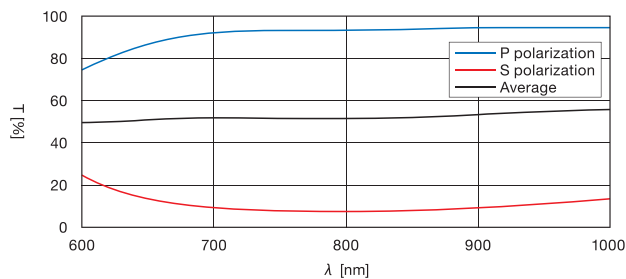
DCHB-405



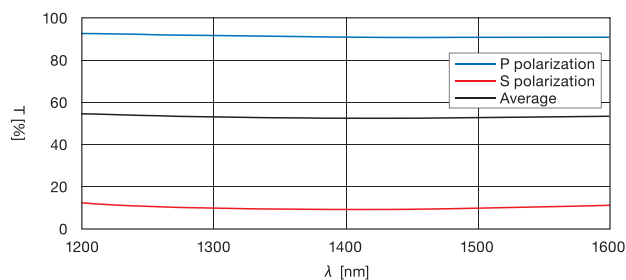
DCHB-550



DCHB-800



DCHB-1400



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Compatible Optic Mounts

PH-25, -40 / PH-25PHRO, -40PHRO, -60PHRO / SH-60RO