Dielectric Cube Beamsplitters | DCB

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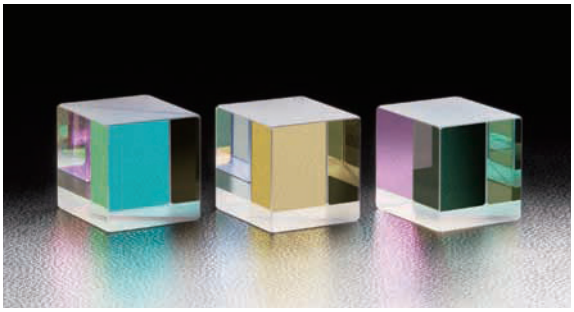
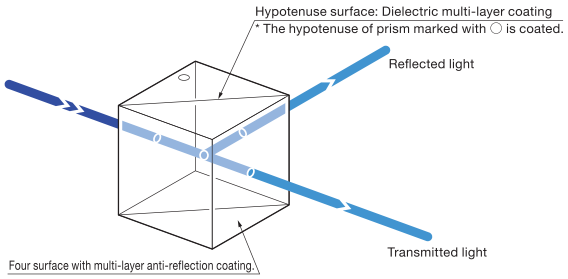
Cube beamsplitters with dielectric multi-layer coated to the oblique faces of a 45° right angle prism. Divides beams at reflected light (R) : transmission light (T) ratio of 1:2 or 1:3.

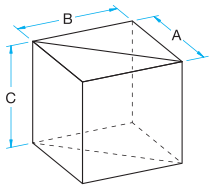
- Anti-reflection films (AR coat) is applied to the incident and outgoing planes.
- The dielectric multi-layer films has virtually zero light absorption and very low light intensity loss. However, transmittance and reflectance may change according to wavelength, polarization and incident angles. A higher reflectance will occur from a higher dependence.
- In contrast to plate type half mirrors, cube mirrors have no ghosting or transmission optical path deviation.



Schematic



Outline Drawing (in mm)



●Tolerance
A ±0.2
B ±0.2
C ±0.1

Specifications

Material	BK7
Surface Flatness	λ/4
Wavelength Range	400 – 700nm
Beam Deviation	<5′
Coating	Hypotenuse surface: Dielectric multi-layer coating Four surfaces: Multi-layer anti-reflection coating
Incident angle	0°
Polarization of the incident beam	Non-polarized beam 45 degrees direction of lineraly polarization or cirlular polarization
Laser Damage Threshold	0.3J/cm^2 (Laser pulse width 10ns, repetition frequency 20Hz)
Surface Quality (Scratch–Dig)	20–10
Clear aperture	85% of actual aperture

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

- ▶Introduce light (from or to) the prism on the side indicated by ○ (half coated side).
- ▶The transmission curve on the graph is based on actual measurements and may vary from different production lots.
- ▶Phase retardation of inputting light will not be preserved. Use waveplate for phase compensation.
- ▶Use only non-polarized light or circular polarized light as incident light for dielectric multi-layer coated beam splitters. Using polarized light may result in division ratios that vary according to polarization components.
- ▶Dielectric multi-layer coated cube half mirrors sometimes do not function effectively as half mirrors. During such case, first check the polarization characteristics of the light source (laser). Do keep in mind that lasers used for the semiconductor field emit a linear polarized light.

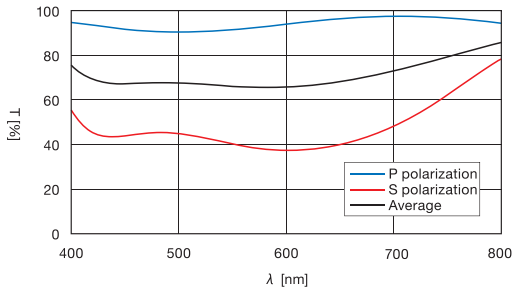
Specifications

Part Number	Reflectance : Transmittance	A=B=C [mm]	Transmittance at 550nm [%]	Transmittance at 400-700nm [%]
DCB33-10-550	1 : 2	10	67±5	<80
DCB33-20-550	1 : 2	20	67±5	<80
DCB25-10-550	1 : 3	10	75±5	<90
DCB25-20-550	1 : 3	20	75±5	<90

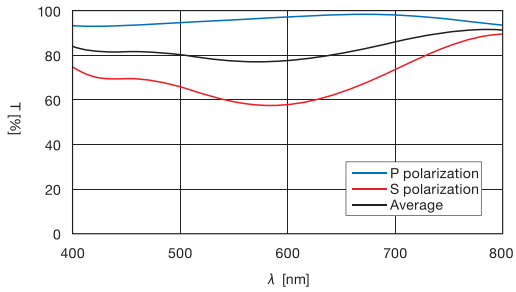
Typical Transmittance Data

T: Transmission

DCB33



DCB25



Compatible Optic Mounts

PH-25, -40 / PH-25PHRO, -40PHRO