

Ultra Broadband Dielectric Half Mirrors

UBDHB/BDHB

RoHS

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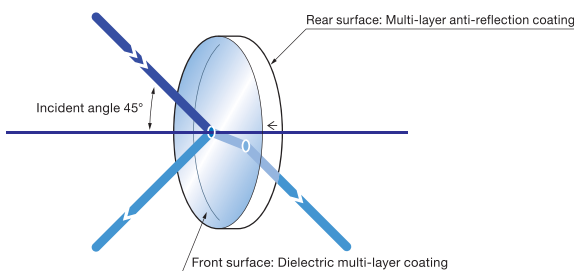
Holder & Vibration isolator

Half-Mirror optics designed for use in Ultraviolet, Visible and Infrared wavelengths. Used for both transmission and divergence of multi-wavelength laser and white light source. Ultra broadband half-mirrors are used for spectrometry applications.

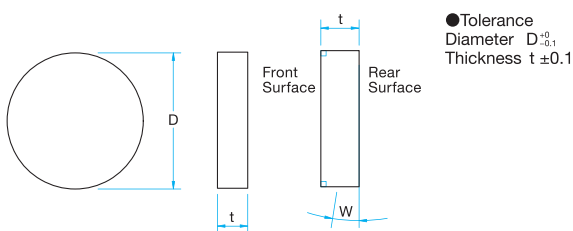
- PMH series have 4 types of ultra-broadband optics with a recovery range from UV to IR.
- PSMH series have 3 types of ultra-broadband optics with a recovery range from Visible to NIR, which are used for optical communication applications.
- Dielectric multi-layer coated optics is an excellent choice for beam deviation applications because of its low absorption capabilities.
- Its low polarization characteristic can also be applied in beam deviation with a linear polarization laser or a laser light.
- Sigma Koki produces plate form optics that is light weight and maintains low dispersion with less aberration.
- Both wedge and plate type mirrors are made to have "low ghosting and low interference effect."



Schematic



Outline Drawing



Specifications

Material	BK7, Synthetic fused silica
Surface Flatness	$\lambda/10$
Coating	Front surface: Dielectric multi-layer coating Rear surface: Multi-layer anti-reflection coating
Incident angle	45°
Divergence ratio (reflectance : transmittance)	1 : 1
Surface Quality (Scratch-Dig)	10-5
Clear aperture	90% of actual aperture

Guide

- ▶ For customization, we can offer different sizes, wavelengths and deviation ratios. [Reference](#) C063 Please contact our International Sales Division.
- ▶ For guaranteed higher reflectance accuracy and higher transmittance optics, please contact us.
- ▶ An arrow mark will be printed on the thick side of the wedge plate to indicate the surface of the mirror.

Attention

- ▶ When applying a laser linear polarized light, the direction of polarization may affect the rates of reflectance and transmittance. For a rigorous divergence usage of 1:1 ratio, ensure the direction of polarization is set to 45 degrees or use a circular polarizer.
- ▶ When a laser light transmits through the optics, the light path may shift by a few millimetres horizontally due to the refraction and the thickness of the wedge plate.
- ▶ The transmittance wavelength properties may be different if the incident angle is other than 45 degrees.
- ▶ Please check the arrow mark on the side of the wedge plate that indicate the coated surface.
- ▶ The phase difference of incident light cannot be preserved on light transmittance and reflectance. Please use a wave plate to compensate.

Ultra broadband

Part Number	Wavelength Range [nm]	Diameter D [mm]	Thickness t [mm]	Material	Parallelism	Transmittance (The average value of the P-Polarization and the S-Polarization) [%]	Laser Damage Threshold* [J/cm²]
UBDHB-25.4C03-10-25/7	250 - 700	φ25.4	3	Synthetic fused silica	<5"	Average 50±10	0.5
UBDHB-30C03-10-25/7	250 - 700	φ30	3	Synthetic fused silica	<5"	Average 50±10	0.5
UBDHB-50C03-10-25/7	250 - 700	φ50	5	Synthetic fused silica	<5"	Average 50±10	0.5
UBDHB-25.4C03-10-3/10	300 - 1000	φ25.4	3	Synthetic fused silica	<5"	Average 50±10	0.5
UBDHB-30C03-10-3/10	300 - 1000	φ30	3	Synthetic fused silica	<5"	Average 50±10	0.5
UBDHB-50C03-10-3/10	300 - 1000	φ50	5	Synthetic fused silica	<5"	Average 50±10	0.5
UBDHB-25.4C03-10-6/18	600 - 1800	φ25.4	3	BK7	<5"	Average 50±10	0.5
UBDHB-30C03-10-6/18	600 - 1800	φ30	3	BK7	<5"	Average 50±10	0.5
UBDHB-50C03-10-6/18	600 - 1800	φ50	5	BK7	<5"	Average 50±10	0.5
UBDHB-25.4C03-10-4/20	400 - 2000	φ25.4	3	BK7	<5"	Average 50±10	0.5
UBDHB-30C03-10-4/20	400 - 2000	φ30	3	BK7	<5"	Average 50±10	0.5
UBDHB-50C03-10-4/20	400 - 2000	φ50	5	BK7	<5"	Average 50±10	0.5

* Laser pulse width 10ns, repetition frequency 20Hz

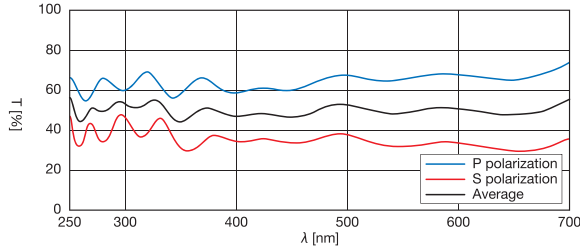
Compatible Optic Mounts

GBH-30S, -50S / KMH-HS25-NL, MP30-NL, MP50-NL

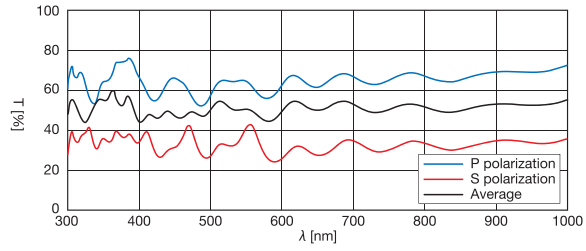
Typical Transmittance Data

T: Transmission

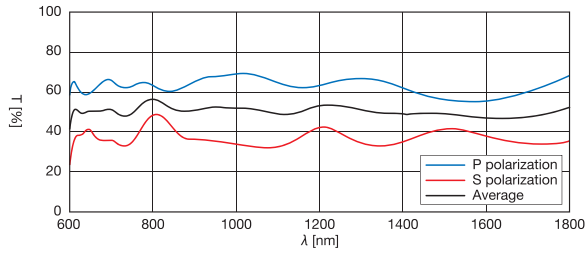
UBDHB-25/7 (250 – 700nm)



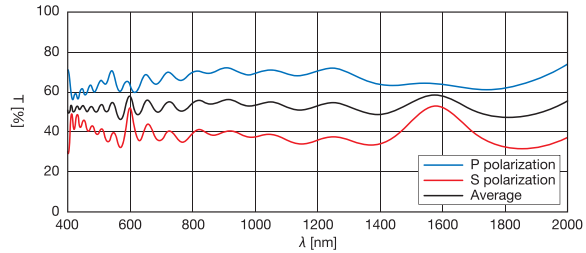
UBDHB-3/10 (300 – 1000nm)



UBDHB-6/18 (600 – 1800nm)



UBDHB-4/20 (400 – 2000nm)



Broadband

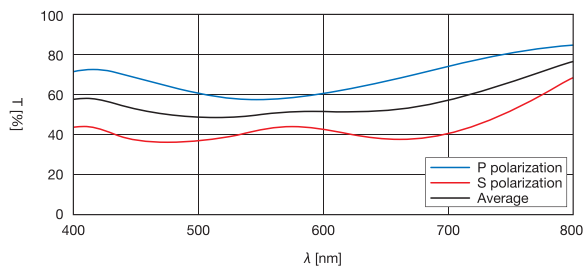
Part Number	Wavelength Range [nm]	Diameter D [mm]	Thickness t [mm]	Material	Parallelism	Transmittance (The average value of the P-Polarization and the S-Polarization) [%]	Laser Damage Threshold* [J/cm ²]
BDHB-30C03-10-550	400 – 700	φ30	3	BK7	<5"	Average 50±5	2.1
BDHB-30C05-10W-550	400 – 700	φ30	5	BK7	1°±5'	Average 50±5	2.1
BDHB-40C04-10-550	400 – 700	φ40	4	BK7	<5"	Average 50±5	2.1
BDHB-50C05-10-550	400 – 700	φ50	5	BK7	<5"	Average 50±5	2.1
BDHB-50C08-10W-550	400 – 700	φ50	8	BK7	1°±5'	Average 50±5	2.1
BDHB-30C03-10-800	700 – 900	φ30	3	BK7	<5"	50±3 (800nm)	2.1
BDHB-30C05-10W-800	700 – 900	φ30	5	BK7	1°±5'	50±3 (800nm)	2.1
BDHB-50C05-10-800	700 – 900	φ50	5	BK7	<5"	50±3 (800nm)	2.1
BDHB-50C08-10W-800	700 – 900	φ50	8	BK7	1°±5'	50±3 (800nm)	2.1
BDHB-30C03-10-1400	1300 – 1550	φ30	3	BK7	<5"	50±3 (1400nm)	2.1
BDHB-30C05-10W-1400	1300 – 1550	φ30	5	BK7	1°±5'	50±3 (1400nm)	2.1

* Laser pulse width 10ns, repetition frequency 20Hz

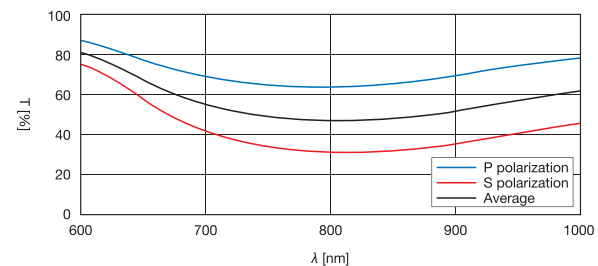
Typical Transmittance Data

T: Transmission

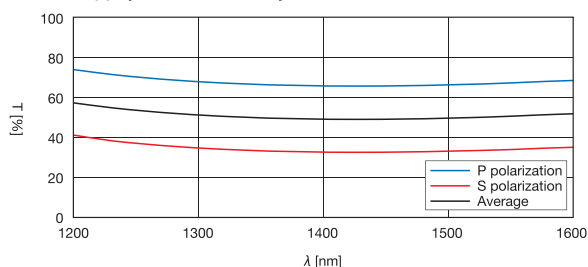
BDHB-550 (400 – 700nm)



BDHB-800 (700 – 900nm)



BDHB-1400 (1300 – 1550nm)



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