Laser Line Plate Half Mirrors | PSMH

RoHS

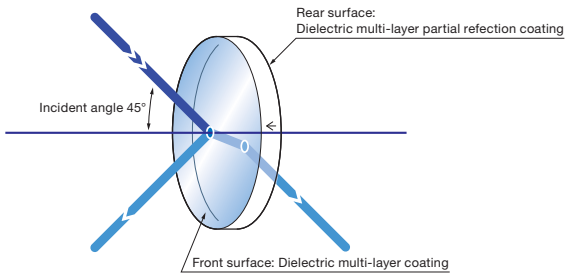
Laser line plate mirrors are plate beamsplitters that are optically coated with dielectric multi-layer on the front surface of optical parallels or wedged substrates.
The rear surface is coated with multi-layer anti-reflection.

- Half mirrors divide input beam into reflectance and transmittance ratio of 1:1. A beamsplitter of R:T=1:1 is called “Half Mirror”.
- Any loss from the input beams of this product is minimized because dielectric coatings have no absorption properties. However, the input ratio of reflection to transmission depends on wavelength, polarization and angle of incident of input beam.
- Plate beamsplitters have beam deviations on transmission and ghost on rear surface reflections. Wedged substrates are used to prevent ghosting.

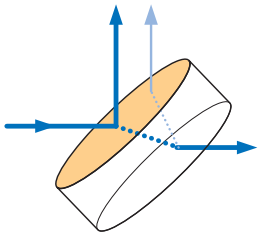
Specifications

Material	BK7, Synthetic fused silica, CaF_2
Surface Flatness	λ/10 (PSMH-157 is Polished)
Coating	Front surface: Dielectric multi-layer partial refection coating Rear surface: Multi-layer anti-reflection coating
Incident angle	45°
Divergence ratio (reflectance : transmittance)	1 : 1
Surface Quality (Scratch–Dig)	10–5 (PSMH-157: 40–20)
Clear aperture	90% of actual aperture

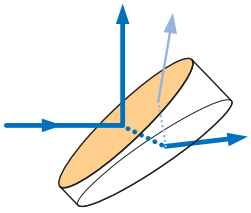
Schematic



Optical Parallel



Wedged Substrate



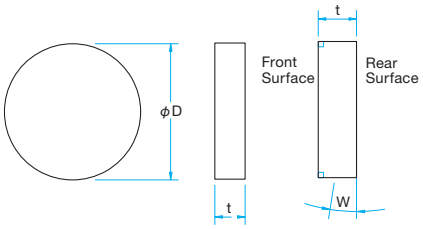
Guide

- Please contact our Sales Division for customized products. (Customized on size, wavelength or R:T, etc.)
- We also have ultra-wideband, broadband and cube types.
- For a guarantee in reflected wavefront error or transmitted wavefront error, please contact our Sales Division with your requests.
- Wedged types are marked with an arrow on the side of the substrate indicating the thickest point of the wedge.

Attention

- Should these products not function as a half mirror, please check the polarization characteristics of the light source. Do note that LD laser is linear in polarization.
- The beam deviation at transmission of a wedged beamsplitter is large compared to a one made of optical parallel.
- The amount of beam deviation of a beamsplitter depends on the thickness of the substrate and the wavelength or the incident angle of the input beam.
- Transmission curves are based on actual measurements and may vary with manufacturing lots.
- Surface flatness is the reflected wavefront distortion of the surface prior to coating.
- Be sure to wear laser safety goggles when checking optical path and adjusting optical axis.

Outline Drawing (in mm)



●Tolerance
Diameter $\phi D^{+0}_{-0.1}$
Thickness t ±0.1

Compatible Optic Mounts

BHAN-30S, -50S / MHG-MP30-NL, MP50-NL

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Laser Line

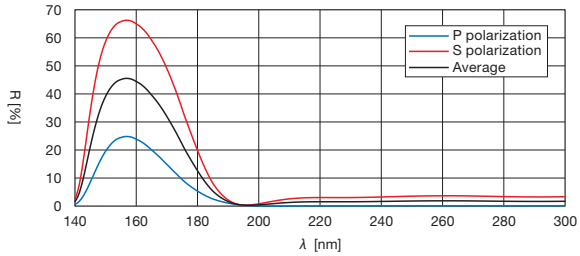
Part Number	Wavelength Range [nm]	Diameter ϕD [mm]	Thickness t [mm]	Material	Parallelism W	Reflectance:R Transmittance:T (The average value of the P-Polarization and the S-Polarization) [%]	Laser Damage Threshold* [J/cm²]
PSMH-30C03-P-157	157	ϕ30	3	CaF_2	<3′	R=40±10	0.5
PSMH-50C05-P-157	157	ϕ50	5	CaF_2	<3′	R=40±10	0.5
PSMH-30C03-10-193	193	ϕ30	3	Synthetic fused silica	<5″	T=45±5	1
PSMH-30C05-10W-193	193	ϕ30	5	Synthetic fused silica	1°±5′	T=45±5	1
PSMH-50C05-10-193	193	ϕ50	5	Synthetic fused silica	<5″	T=45±5	1
PSMH-50C08-10W-193	193	ϕ50	8	Synthetic fused silica	1°±5′	T=45±5	1
PSMH-30C03-10-248/266	248 – 266	ϕ30	3	Synthetic fused silica	<5″	T=50±3	2
PSMH-30C05-10W-248/266	248 – 266	ϕ30	5	Synthetic fused silica	1°±5′	T=50±3	2
PSMH-50C05-10-248/266	248 – 266	ϕ50	5	Synthetic fused silica	<5″	T=50±3	2
PSMH-50C08-10W-248/266	248 – 266	ϕ50	8	Synthetic fused silica	1°±5′	T=50±3	2
PSMH-30C03-10-308/355	308 – 355	ϕ30	3	Synthetic fused silica	<5″	T= Average 50±5	2
PSMH-30C05-10W-308/355	308 – 355	ϕ30	5	Synthetic fused silica	1°±5′	T= Average 50±5	2
PSMH-50C05-10-308/355	308 – 355	ϕ50	5	Synthetic fused silica	<5″	T= Average 50±5	2
PSMH-50C08-10W-308/355	308 – 355	ϕ50	8	Synthetic fused silica	1°±5′	T= Average 50±5	2
PSMH-30C03-10-405	390 – 410	ϕ30	3	BK7	<5″	T=50±3	2.1
PSMH-30C05-10W-405	390 – 410	ϕ30	5	BK7	1°±5′	T=50±3	2.1
PSMH-50C05-10-405	390 – 410	ϕ50	5	BK7	<5″	T=50±3	2.1
PSMH-50C08-10W-405	390 – 410	ϕ50	8	BK7	1°±5′	T=50±3	2.1
PSMH-30C03-10-1064	1064	ϕ30	3	BK7	<5″	T=50±3	20
PSMH-30C05-10W-1064	1064	ϕ30	5	BK7	1°±5′	T=50±3	20
PSMH-50C05-10-1064	1064	ϕ50	5	BK7	<5″	T=50±3	20
PSMH-50C08-10W-1064	1064	ϕ50	8	BK7	1°±5′	T=50±3	20

*Laser pulse width 10ns (PSMH-157: 20ns), repetition frequency 20Hz

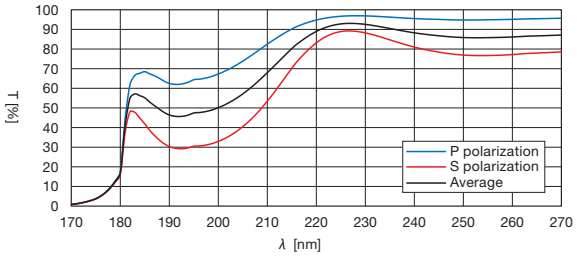
Typical Reflectance Data & Typical Transmittance Data

R: Reflectance T: Transmission

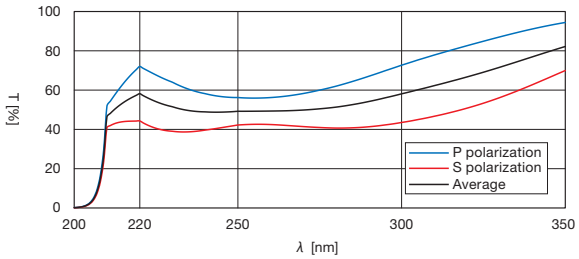
PSMH-157



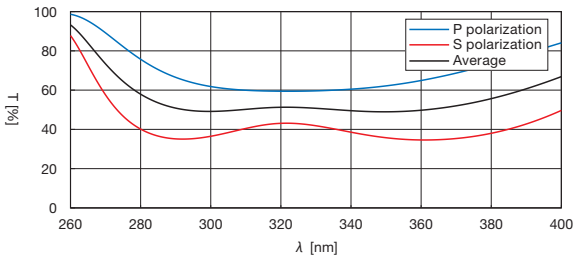
PSMH-193



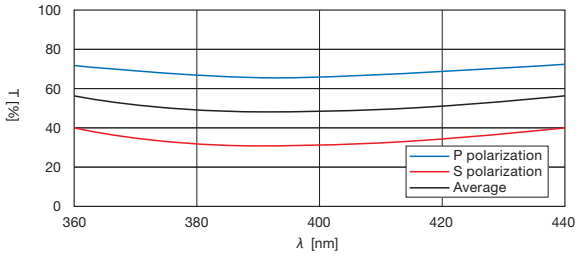
PSMH-248/266



PSMH-308/355



PSMH-405



PSMH-1064