

**NEW** Frameless Mirror Unit  
**NEW** Frameless Beamsplitter Unit

**FMU**  
**FB**

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Frameless mounting is designed to minimize footprint space and allows the maximum front surface area of the mirror to be coated.

Our high reflectivity mirrors are produced using a ceramic material.

Thermal expansion ratio is equivalent to Zerodur® for maximum thermal stability.

- Laser damage threshold of the mirror is equivalent to our high power dielectric laser mirrors (TFMHP).
- $\lambda/10$  surface accuracy guarantee after coating.
- The Beamsplitter coating is equivalent to our ultra broadband dielectric half mirror (PSMH).
- Fused Silica is used for our beamsplitters. It is to minimize transmitted wavefront error(s).
- The patent related to this product (Patent No. 4586110) was obtained by SIGMA KOKI CO., LTD. in November 2011.



### Specifications

#### Holder

Type	FMU-24.4	FMU49 FB-49
Adjustable axis	3 axis	2 axis
Adjustment Range [°]	Elevation	$\pm 3$
	Rotation	$\pm 3$
Resolution [°/rotation]	Elevation	0.74
	Rotation	0.74
Main material	Brass	Aluminum
Surface finishing	Super black chrome	Black anodized
Weight [kg]	0.04	0.16

#### Mirror

Type	Mirror	Beamsplitter
Material	Ceramic	Synthetic fused silica
Incident angle	$45^\circ \pm 3^\circ$	
Surface accuracy after coating	Reflective wavefront distortion $\lambda/10$	
Surface Quality (Scratch-Dig)	20-10	
Reflectance	>99%	Average 50 $\pm$ 5%

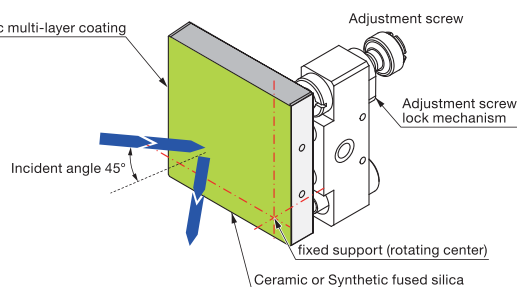
#### Guide

- ▶ How to mount to the base is the same as the mirror holder MHG. **Reference** D010
- ▶ Able to mount on Pedestal Bases(PS-\*\*) and Post(RO-\*\*) with M6 thread (sold separately) **Reference** F036, F043

#### Attention

- ▶ Surface accuracy data is not provided with product. Surface accuracy data is subjected to an additional charge.
- ▶ Reflectance of the specification are represented by the average of the reflectance of P polarized light and S polarized light.
- ▶ If the product is used without setting the angle of incidence to  $45^\circ$ , the reflection rate may decrease.
- ▶ Be sure to wear laser safety goggles when checking optical path and adjusting optical axis.

#### Schematic



### Mirror Unit

Part Number	Wavelength Range [nm]	Dimension of front plate [mm]	Coating clear aperture [mm]	Surface accuracy after coating [mm]	Laser Damage Threshold* [J/cm <sup>2</sup> ]
<b>FMU-24.4-355</b>	355	24.4×24.4×7	23×23	$\phi 20$	8
<b>FMU-24.4-532</b>	532	24.4×24.4×7	23×23	$\phi 20$	26.5
<b>FMU-24.4-1064</b>	1064	24.4×24.4×7	23×23	$\phi 20$	28
<b>FMU-49-355</b>	355	49×49×8.5	48×48	$\phi 30$	8
<b>FMU-49-532</b>	532	49×49×8.5	48×48	$\phi 30$	26.5
<b>FMU-49-1064</b>	1064	49×49×8.5	48×48	$\phi 30$	28

\* Laser pulse width 10ns, repetition frequency 20Hz

### Beamsplitter Unit

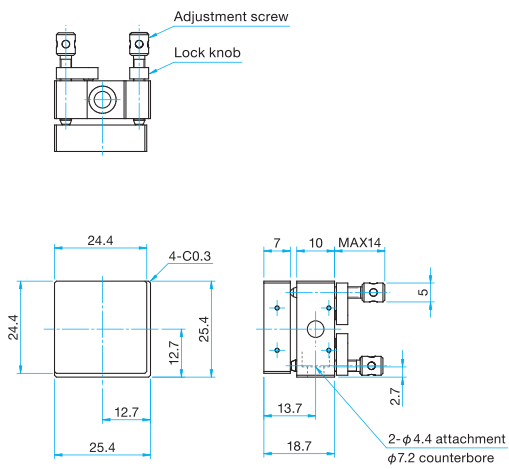
Part Number	Wavelength Range [nm]	Dimension of front plate [mm]	Coating clear aperture [mm]	Surface accuracy after coating [mm]	Clear aperture of transmitted beam [mm]	Laser Damage Threshold* [J/cm <sup>2</sup> ]
<b>FB-49-VIS</b>	400 - 700	49×49×12	48×48	$\phi 30$	$\phi 20$	2.1

\* Laser pulse width 10ns, repetition frequency 20Hz

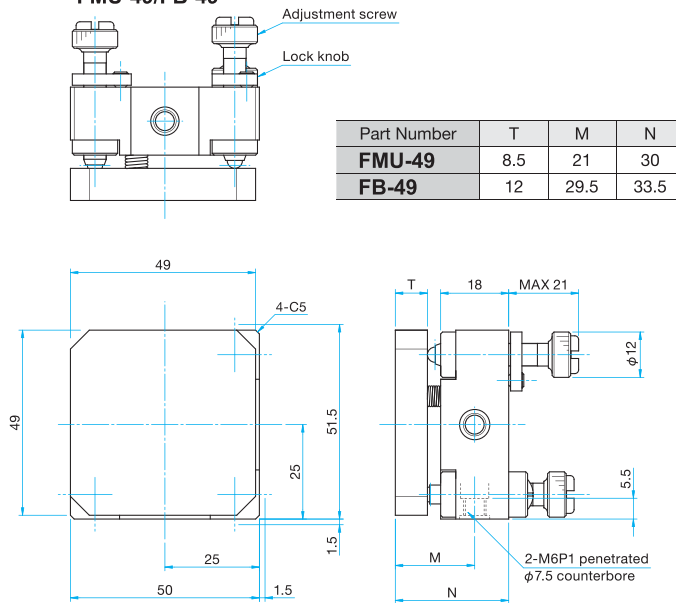
**Outline Drawing**

(in mm)

**FMU-24.4**



**FMU-49/FB-49**

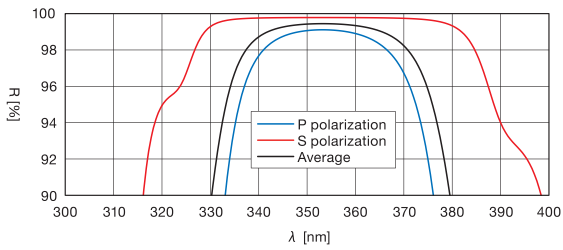


Part Number	T	M	N
<b>FMU-49</b>	8.5	21	30
<b>FB-49</b>	12	29.5	33.5

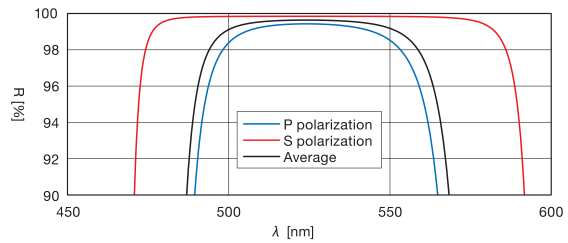
**Typical Reflectance Data of Frameless Mirror**

R: Reflectance

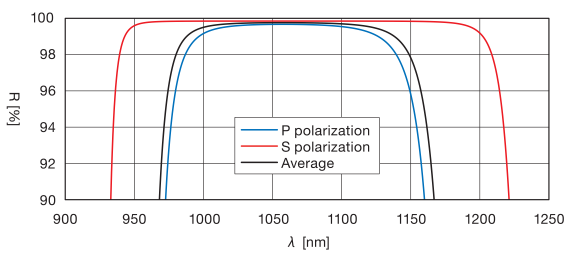
**FMU-355**



**FMU-532**



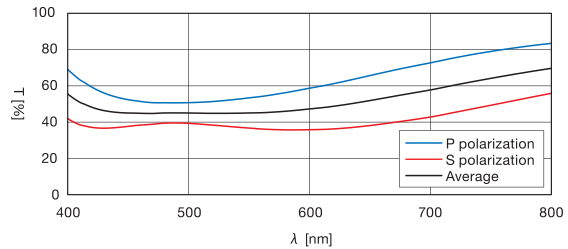
**FMU-1064**



**Typical Transmittance Data of Frameless Beamsplitter**

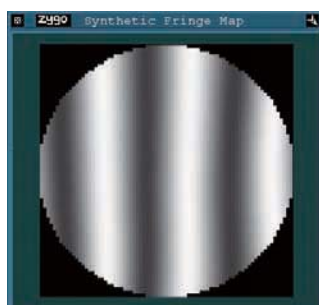
T: Transmission

**FB-VIS**



**Surface Accuracy Data (reference data)**

**FMU-49-532**



- Surface accuracy measurement method: Measured with Zygo laser interferometer
- Surface accuracy measurement wavelength 632.8nm
- Surface accuracy guaranteed temperature 23°C±2°C

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