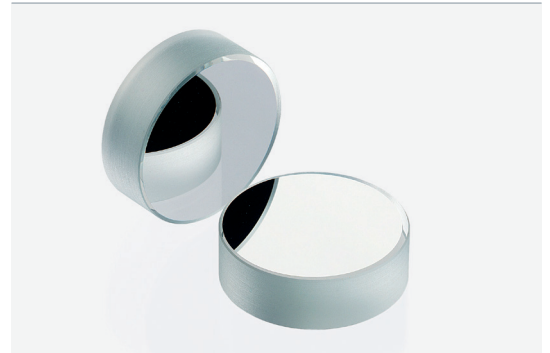




# Laser Beamsteering Mirrors

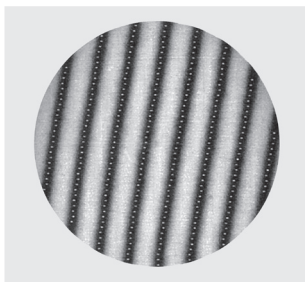
## First Choice for All Mirror Applications

Materion Balzers Optics designs and produces flat mirrors for use in all mirror applications. Their features are excellent quality, impressive flatness, low scattering and they are easy to use over a wide range of angles and wavelengths because of their consistent reflectivity. Dielectric coated mirrors are extremely durable; they have a long lifetime and can be cleaned repeatedly. Compare the surface quality of Materion Balzers Optics mirrors to that of others and you will find no mirror with this convincing quality in this price range.



### Benefits

- High precision
- High reflectivity
- High durability
- Low loss



Interferogram of surface flatness

### Technical Data

Material	Borofloat 33		
Figure	$\lambda / 10^*$		
Irregularity	$\lambda / 20^*$		
Scratch-dig	20-10 (dielectric mirrors) 25-10 (metallic mirrors)		
Clear aperture	> 80% of diameter		
Durability	MIL-M-13508-C		
Sizes	Ø 12.7 mm	Ø 25.4 mm	Ø 50.8 mm
Thickness	5.0 mm	8.0 mm	12.5 mm

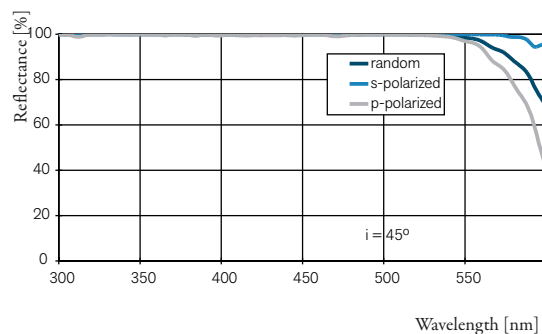
\*after coating,  $\lambda = 633 \text{ nm}$

### UV dielectric mirror

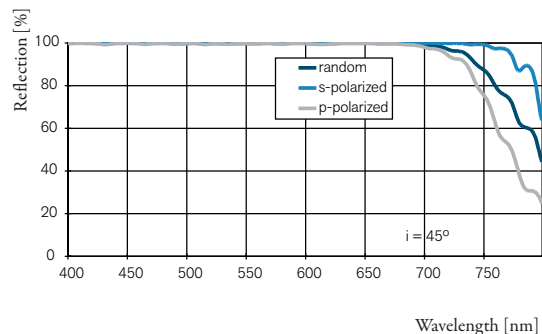
These mirrors are designed for use with moderately powered UV and blue light lasers such as argonion lasers. They have more than 98% reflectivity from 300 – 530 nm for any polarization with any angle of incidence from 0° to 45°

Wavelength	(R > 97%)	300 – 320 nm
	(R > 98%)	320 – 420 nm
	(R > 99%)	420 – 530 nm
Damage threshold	500 kW/cm <sup>2</sup> (cw)	
	0.3 J/cm <sup>2</sup> (10-ns pulse)	

### Mirror for UV 300–530 nm



### Mirror for visible lasers 450–700 nm



### Visible dielectric mirror

These mirrors are designed for use with most gas lasers and dye lasers. They have more than 99% reflectivity for most visible laser light of any polarization with any angle of incidence from 0° to 45°

Wavelength	(R > 99%)	450 – 700 nm
Damage threshold	500 kW/cm <sup>2</sup> (cw)	
	1 J/cm <sup>2</sup> (10-ns pulse)	

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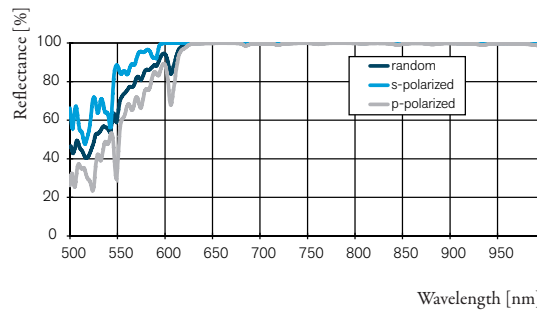


### Near-IR dielectric mirror

These mirrors have more than 99% reflectivity for most near-IR lasers. A particularly useful feature is their relatively high reflectivity at 633 nm, offering compatibility with HeNe alignment lasers.

Wavelength (R > 99%)	700 – 900 nm
Damage threshold	500 kW/cm <sup>2</sup> (cw) 10 J/cm <sup>2</sup> (28-ns pulse)

Mirror for near-IR 700 – 900 nm

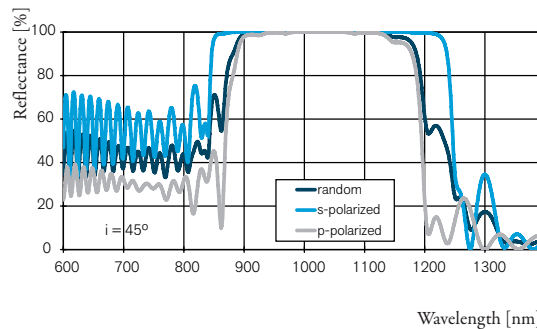


### Dielectric high-power Nd:YAG mirror

These mirrors are designed specifically for use with high-power Nd:YAG laser. Suitable for use with almost all commercial lasers built today, they can withstand up to 5 J/cm<sup>2</sup> at 1.06 μm in a 10-ns pulse. The reflectivity is greater than 99% from 0° to 45° at 1.06 μm for all polarizations. In addition, these dielectric mirrors have reflectivity of 40% for 633 nm light at angles of incidence up to 45°. This makes them especially convenient for a HeNe laser as an alignment tool. Dielectric Nd:YAG mirrors for 532 nm are also available.

Wavelength (R > 99%)	1030 – 1070 nm AOI 0° – 45°, any pol.
Damage threshold	1 MW/cm <sup>2</sup> (cw) 5 J/cm <sup>2</sup> (10-ns pulse)

Mirror for Neodymium:YAG laser

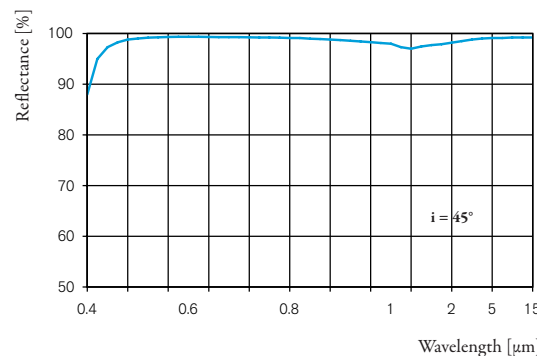


### Silflex™ MK II – General-purpose silver-coated mirror

These mirrors can be used over a broad spectral range with better than 98% reflectivity from 450 nm to beyond 12 μm. Their proprietary silver-based coating makes them highly reflective from 0° to 45° and virtually insensitive to polarization. Protective dielectric coatings make them resistant to tarnish and oxidation. Plus they have minimal phase distortion, so they are useful for ultrafast-pulsed applications with Ti:Sapphire and other lasers.

Wavelength (R ≥ 98% avg)	0.45 – 12 μm, AOI 45°, r-pol.
Damage threshold	30 kW/cm <sup>2</sup> (cw) 0.5 J/cm <sup>2</sup> (10-ns pulse)

Silflex™ MK II mirror for lasers in the VIS, the NIR and FIR



**NOTE: While all our mirrors meet the same MIL-M-13508-C durability specifications, the silver-coated mirrors are more easily damaged than those with dielectric coatings. Unless you need the wide spectral reflectivity and constant phase-shift of silver-coated mirrors, we recommend our broad-band dielectric mirrors.**

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