

Spherical Lenses

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Micro Optics

Mirrors

Prisms

Substrates &amp; Windows

Beamsplitters

Polarizers

Filter &amp; Apertures

## Mirrors

- **Laser Line Mirrors** with multilayer dielectric coatings for 0 and 45 degree incidence
- **Broadband Mirrors** with multilayer dielectric coatings
- **Femtosecond Laser Mirrors** with Low and Negative Dispersion
- **Ultra-broadband Mirrors** with enhanced metallic coatings
- **Metallized Mirrors** with protected aluminum coatings
- **Hot and Cold Mirrors** with multilayer dielectric coatings
- **Spherical Mirrors** with protected aluminum coatings
- **Parabolic Mirrors** with protected aluminum coatings



Mirrors are a critical and commonly used component in many optical systems. They are used to fold, bend and focus optical beams. They often allow a more compact and manageable system design. Optical quality mirrors are coated on their front surface with a metallic or dielectric coating to reflect the light. Three characteristics are important when choosing an optical mirror: surface figure, surface quality and the coating specification.

**Surface figure** refers to the geometric variation of the actual mirror surface from the ideal. By convention this is measured in fractions of a wave of light at 633nm. Note that because the light is reflected from the surface the actual wavefront degradation will be twice the deviation specified. Optical finishing techniques all suffer from a small boundary effect at the edge of a component. This results in a slight turn down of the surface in the outer 5% of the diameter. This turn down is typically less than two or three times the nominal specification. As a result, only the central 90% of a mirror should be used in demanding applications. Our best quality mirrors are the Laser Mirrors and the Broadband Mirrors; they should be selected in most situations where wavefront distortion and scattering are of concern.

**Surface quality** refers to residual defects in the surface of the mirror; normally slight scratches or streaks and digs or pits. Apart from being unsightly, surface defects contribute to scattering of the reflected light. In most imaging applications these contributions are negligible and will not cause problems. In laser systems, however, scattering can cause unwanted diffraction patterns and even (in higher power applications) contribute to the failure of the coating. Our mirror specifications follow the US Military Specification Standard MIL-O-13830A for scratch and dig performance. Our Laser Mirrors and Broadband Mirrors provide the highest levels of surface quality and should be selected for critical applications.

**Different coatings** are available for different applications because no one coating is able to optimize all of the reflection criteria at one time. Coatings will affect the intensity and polarization state of the reflected beam and so should be chosen with care. Spectral reflectance curves for our various coatings are shown in the preceding coatings section. Note that the highest reflectivity is sometimes restricted to a narrow spectral range. While all of our mirror coatings are durable, first surface mirror coatings should be handled with care.

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## Laser Mirrors

- High reflectance at laser lines in the Ultra-Violet, visible, and NIR
- Polished to  $\lambda/10$  minimizing subsurface structure
- $\leq 3$  arcmin parallelism
- Multilayer dielectric coatings, optimized for design wavelength
- Designed for 45 degree angle of incidence
- Standard diameters from 12.7 to 50.8mm

These laser mirrors are designed for specific wavelength laser applications where low wavefront distortion, low scattering, and high reflectivity are usually important. The reflectance is greater than 99.5% at the specified wavelength. Typically the s-polarization is greater than 99.9% and p-polarization is close to 99.5%. The reflectance curves shown on pages 112-114 are for a circularly polarized input beam.

Possible surface damage from higher power laser beams is minimized by careful polishing and precisely controlled coating methods.

As with the broadband mirrors, standard diameters are 1/2 inch, 3/4 inch, 1 inch and 2 inches. Other diameters are available on request. Other laser wavelengths can also be provided so please call.



## Specifications & Tolerances

Surface flatness:  $\lambda/10$

Surface quality: 20-10

Thickness:  $\pm 0.1$ mm

Bevel: 0.3mmx45° typical

Laser damage threshold: Single Wavelength:  $5\text{J}/\text{cm}^2$  @ 10ns pulse, 1064nm

Diameter: +0, -0.1mm

Parallelism:  $\leq 3$ arcmin

Clear aperture:  $>90\%$  diameter

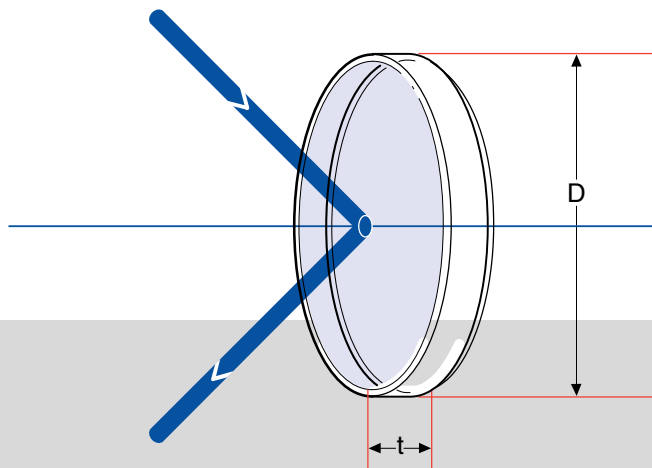
Material: BK7, grade A

Durability: to MIL-C-675

Reflectance:  $R > 99.5\%$  at laser wavelength for  $\lambda > 300\text{nm}$

$R > 99.0\%$  at laser wavelength for  $200\text{nm} < \lambda < 300\text{nm}$

$R > 95.0\%$  at laser wavelength for  $\lambda < 200\text{nm}$

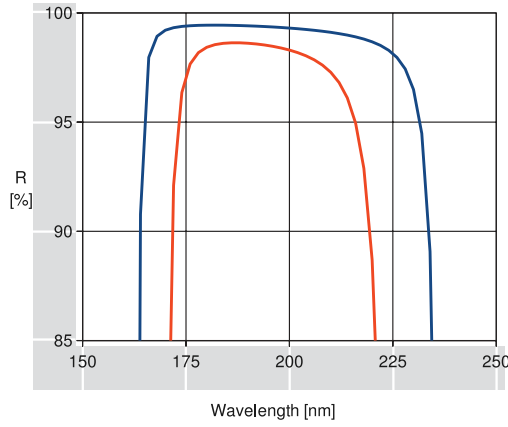


PLANE MIRROR

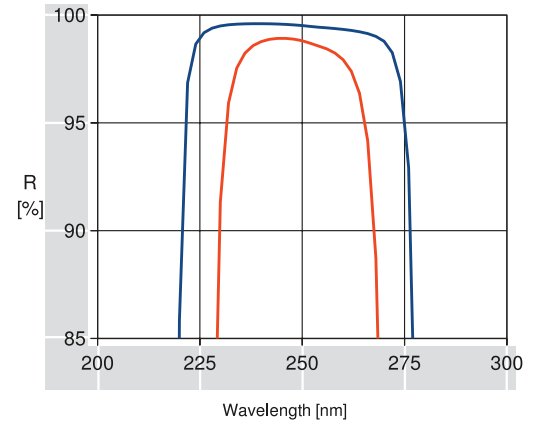
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**OPTICAL COMPONENTS**

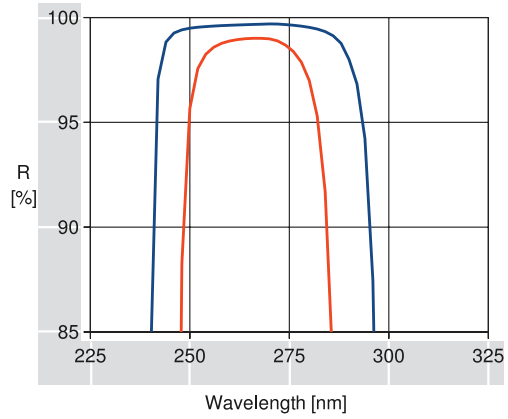
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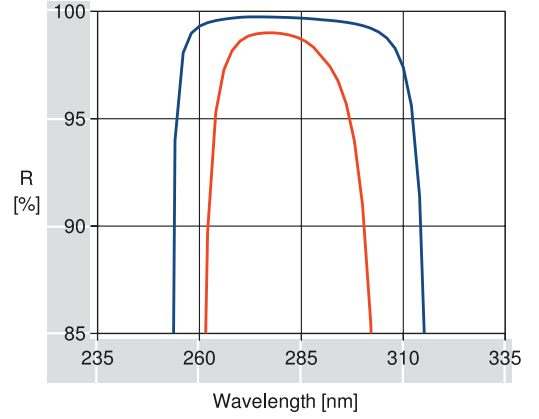
**NARROWBAND H.R. COATING**  
**R03: 193nm**  
 S-POL, 45° ———  
 P-POL, 45° ———



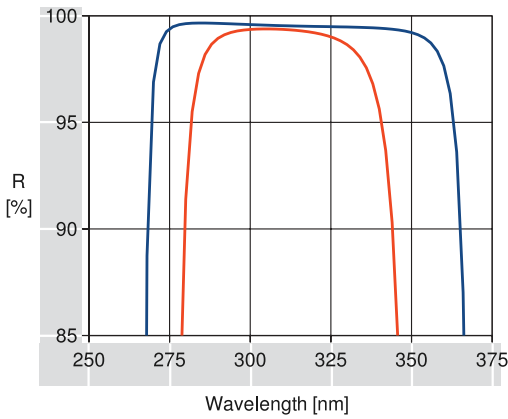
**NARROWBAND H.R. COATING**  
**R04: 248nm**  
 S-POL, 45° ———  
 P-POL, 45° ———



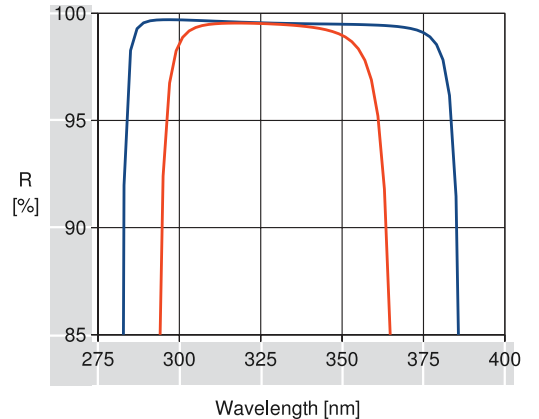
**NARROWBAND H.R. COATING**  
**R05: 266nm**  
 S-POL, 45° ———  
 P-POL, 45° ———



**NARROWBAND H.R. COATING**  
**R06: 281nm**  
 S-POL, 45° ———  
 P-POL, 45° ———



**NARROWBAND H.R. COATING**  
**R07: 308nm**  
 S-POL, 45° ———  
 P-POL, 45° ———



**NARROWBAND H.R. COATING**  
**R08: 325nm**  
 S-POL, 45° ———  
 P-POL, 45° ———

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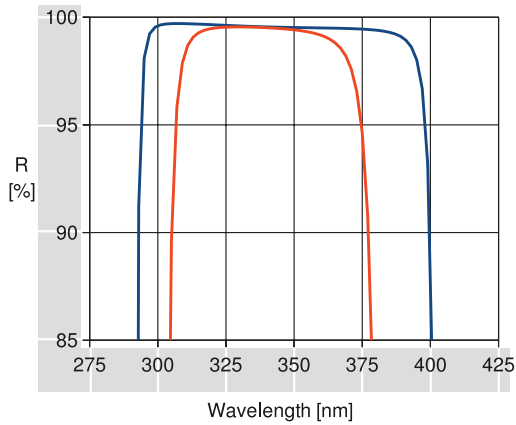
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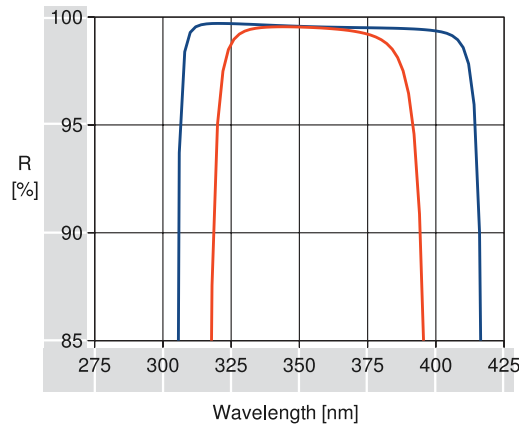
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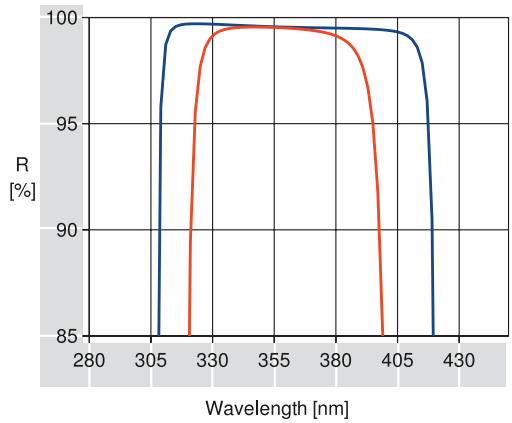
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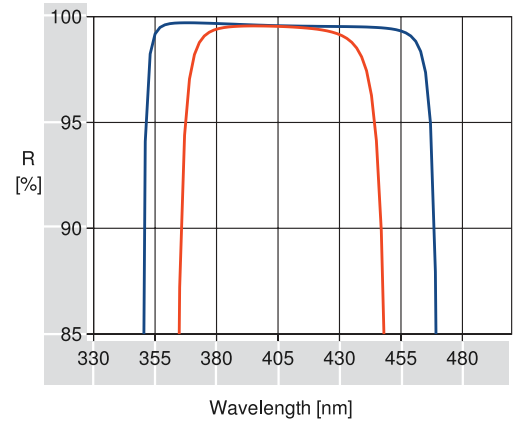
**NARROWBAND H.R. COATING**  
**R11: 337nm**  
 S-POL, 45° ————  
 P-POL, 45° ————



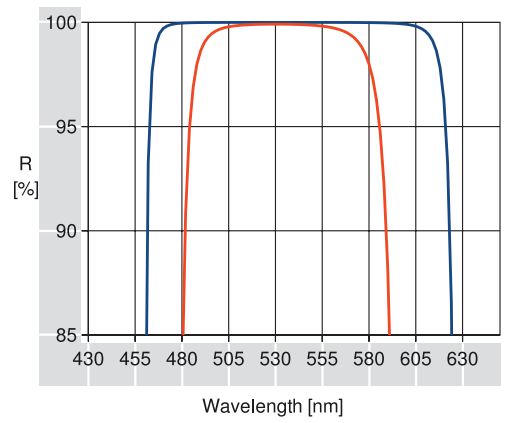
**NARROWBAND H.R. COATING**  
**R13: 352nm**  
 S-POL, 45° ————  
 P-POL, 45° ————



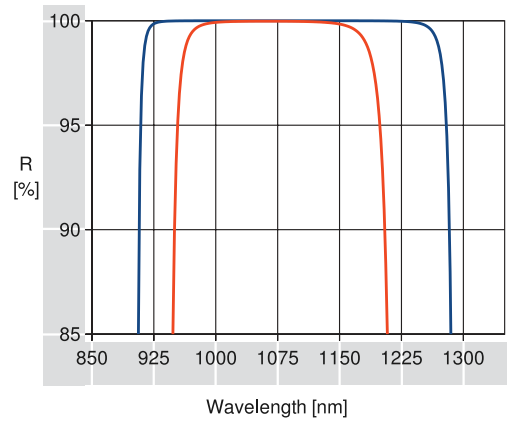
**NARROWBAND H.R. COATING**  
**R14: 355nm**  
 S-POL, 45° ————  
 P-POL, 45° ————



**NARROWBAND H.R. COATING**  
**R16: 405nm**  
 S-POL, 45° ————  
 P-POL, 45° ————



**NARROWBAND H.R. COATING**  
**R26: 532nm**  
 S-POL, 45° ————  
 P-POL, 45° ————



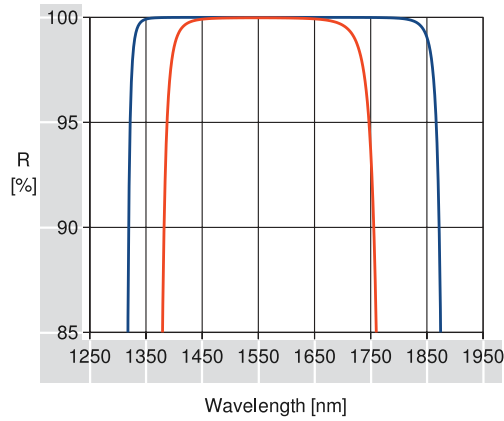
**NARROWBAND H.R. COATING**  
**R46: 1064nm**  
 S-POL, 45° ————  
 P-POL, 45° ————

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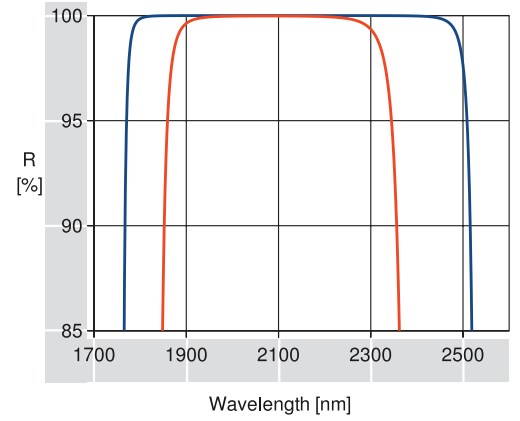
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## Laser Mirrors



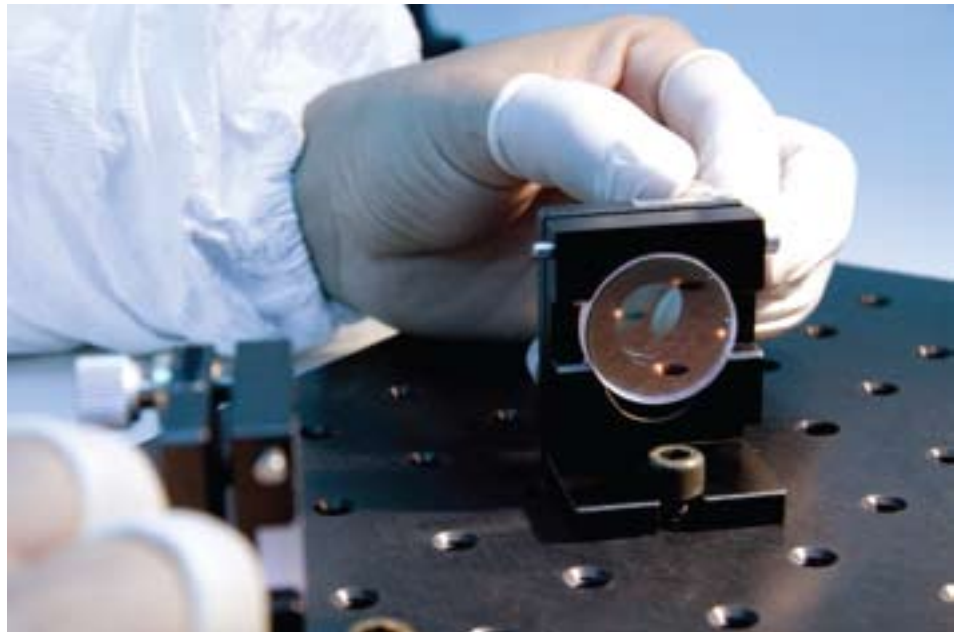
**NARROWBAND  
H.R. COATING**  
R48: 1550nm

S-POL, 45° ———  
P-POL, 45° ———



**NARROWBAND  
H.R. COATING**  
R50: 2060-2100nm

S-POL, 45° ———  
P-POL, 45° ———



We offer a complete line of mirror mounts which fit a variety of applications. Please turn to the mirror mount section and make your selection or call our technical sales team to assist you.

Keeping your optics clean will both improve optical performance and increase the optic's lifetime. Please turn to page 33 for our complete selection of cleaning supplies.

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## Laser Line Mirrors

Lasers	Wavelength Range (nm)	Diameter, D (mm)	Thickness, t (mm)	Reflectance (%)	Price	PART NUMBER
ArF	193	25.4	5.0	≥95.0	\$ 221.00	034-0110
ArF	193	30.0	5.0	≥95.0	\$ 275.00	034-0120
ArF	193	50.0	8.0	≥95.0	\$ 310.00	034-0130
KrF	248.4	12.7	5.0	≥99.0	\$ 105.00	034-0150
KrF	248.4	19.1	5.0	≥99.0	\$ 121.00	034-0155
KrF	248.4	25.4	5.0	≥99.0	\$ 131.00	034-0160
KrF	248.4	30.0	5.0	≥99.0	\$ 173.00	034-0170
KrF	248.4	50.0	8.0	≥99.0	\$ 236.00	034-0180
KrF	248.4	50.8	8.0	≥99.0	\$ 236.00	034-0185
Nd:YAG 4th	266	12.7	5.0	≥99.0	\$ 105.00	034-0190
Nd:YAG 4th	266	19.1	5.0	≥99.0	\$ 121.00	034-0195
Nd:YAG 4th	266	25.4	5.0	≥99.0	\$ 131.00	034-0200
Nd:YAG 4th	266	30.0	5.0	≥99.0	\$ 173.00	034-0203
Nd:YAG 4th	266	50.0	5.0	≥99.0	\$ 236.00	034-0205
Nd:YAG 4th	266	50.8	8.0	≥99.0	\$ 236.00	034-0210
XeBr	281.8	12.7	5.0	≥99.0	\$ 105.00	034-0220
XeBr	281.8	19.1	5.0	≥99.0	\$ 121.00	034-0225
XeBr	281.8	25.4	5.0	≥99.0	\$ 131.00	034-0230
XeBr	281.8	30.0	5.0	≥99.0	\$ 173.00	034-0240
XeBr	281.8	50.0	8.0	≥99.0	\$ 236.00	034-0250
XeBr	281.8	50.8	8.0	≥99.0	\$ 236.00	034-0260
XeCl	308	12.7	5.0	≥99.5	\$ 105.00	034-0261
XeCl	308	19.1	5.0	≥99.5	\$ 121.00	034-0262
XeCl	308	25.4	5.0	≥99.5	\$ 131.00	034-0264
XeCl	308	30.0	5.0	≥99.5	\$ 173.00	034-0265
XeCl	308	50.0	8.0	≥99.5	\$ 236.00	034-0266
XeCl	308	50.8	8.0	≥99.5	\$ 236.00	034-0267
HeCd	325	12.7	5.0	≥99.5	\$ 100.00	034-0270
HeCd	325	19.1	5.0	≥99.5	\$ 116.00	034-0275
HeCd	325	25.4	5.0	≥99.5	\$ 121.00	034-0280
HeCd	325	30.0	5.0	≥99.5	\$ 152.00	034-0290
HeCd	325	50.0	8.0	≥99.5	\$ 205.00	034-0330
HeCd	325	50.8	8.0	≥99.5	\$ 205.00	034-0340
N2	337.1	12.7	5.0	≥99.5	\$ 100.00	034-0341
N2	337.1	19.1	5.0	≥99.5	\$ 116.00	034-0342
N2	337.1	25.4	5.0	≥99.5	\$ 121.00	034-0344
N2	337.1	30.0	5.0	≥99.5	\$ 152.00	034-0345
N2	337.1	50.0	8.0	≥99.5	\$ 205.00	034-0346
N2	337.1	50.8	8.0	≥99.5	\$ 205.00	034-0347
XeF	352	12.7	5.0	≥99.5	\$ 100.00	034-0350
XeF	352	19.1	5.0	≥99.5	\$ 116.00	034-0355
XeF	352	25.4	5.0	≥99.5	\$ 121.00	034-0360
XeF	352	30.0	5.0	≥99.5	\$ 152.00	034-0370
XeF	352	50.0	8.0	≥99.5	\$ 205.00	034-0380
XeF	352	50.8	8.0	≥99.5	\$ 205.00	034-0390
Nd:YAG 3rd	355	12.7	5.0	≥99.5	\$ 100.00	034-0391
Nd:YAG 3rd	355	19.1	5.0	≥99.5	\$ 116.00	034-0392
Nd:YAG 3rd	355	25.4	5.0	≥99.5	\$ 121.00	034-0394
Nd:YAG 3rd	355	30.0	5.0	≥99.5	\$ 152.00	034-0395
Nd:YAG 3rd	355	50.0	8.0	≥99.5	\$ 205.00	034-0396
Nd:YAG 3rd	355	50.8	8.0	≥99.5	\$ 205.00	034-0397

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## Laser Line Mirrors (continued)

Lasers	Wavelength Range (nm)	Diameter, D (mm)	Thickness, t (mm)	Reflectance (%)	Price	PART NUMBER
LD	405	12.7	5.0	≥99.5	\$ 100.00	<b>034-0400</b>
LD	405	19.1	5.0	≥99.5	\$ 116.00	<b>034-0405</b>
LD	405	25.4	5.0	≥99.5	\$ 121.00	<b>034-0410</b>
LD	405	30.0	5.0	≥99.5	\$ 152.00	<b>034-0415</b>
LD	405	50.0	8.0	≥99.5	\$ 205.00	<b>034-0420</b>
LD	405	50.8	8.0	≥99.5	\$ 205.00	<b>034-0425</b>
Nd:YAG 2nd	532	12.7	5.0	≥99.5	\$ 105.00	<b>034-0590</b>
Nd:YAG 2nd	532	19.1	5.0	≥99.5	\$ 121.00	<b>034-0595</b>
Nd:YAG 2nd	532	25.0	5.0	≥99.5	\$ 131.00	<b>034-0620</b>
Nd:YAG 2nd	532	25.4	5.0	≥99.5	\$ 131.00	<b>034-0660</b>
Nd:YAG 2nd	532	30.0	5.0	≥99.5	\$ 173.00	<b>034-0670</b>
Nd:YAG 2nd	532	50.0	8.0	≥99.5	\$ 236.00	<b>034-0680</b>
Nd:YAG 2nd	532	50.8	8.0	≥99.5	\$ 236.00	<b>034-0690</b>
Nd:YAG	1064	12.7	5.0	≥99.5	\$ 152.00	<b>034-1220</b>
Nd:YAG	1064	19.1	5.0	≥99.5	\$ 173.00	<b>034-1225</b>
Nd:YAG	1064	25.4	5.0	≥99.5	\$ 184.00	<b>034-1240</b>
Nd:YAG	1064	30.0	5.0	≥99.5	\$ 200.00	<b>034-1250</b>
Nd:YAG	1064	40.0	6.0	≥99.5	\$ 275.00	<b>034-1260</b>
Nd:YAG	1064	50.0	8.0	≥99.5	\$ 299.00	<b>034-1270</b>
Nd:YAG	1064	50.8	8.0	≥99.5	\$ 299.00	<b>034-1280</b>
Diode	1550	12.7	5.0	≥99.5	\$ 152.00	<b>034-1360</b>
Diode	1550	19.1	5.0	≥99.5	\$ 173.00	<b>034-1370</b>
Diode	1550	25.4	5.0	≥99.5	\$ 184.00	<b>034-1380</b>
Diode	1550	50.8	8.0	≥99.5	\$ 299.00	<b>034-1390</b>
Holmium/YAG	2100	12.7	5.0	≥99.5	\$ 152.00	<b>034-1330</b>
Holmium/YAG	2100	19.1	5.0	≥99.5	\$ 173.00	<b>034-1335</b>
Holmium/YAG	2100	25.4	5.0	≥99.5	\$ 184.00	<b>034-1340</b>
Holmium/YAG	2100	50.8	8.0	≥99.5	\$ 299.00	<b>034-1350</b>



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*High performance optical coatings require pristine substrates. We ensure that all contaminants are removed from our substrates in a clean room environment before the coating process begins.*

## Laser Line Wide Angle Mirrors

- High Reflectance at laser line wavelengths
- Designed for wide angle use 0-45 degrees
- Multilayer dielectric coatings, optimized for design wavelength



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## Specifications & Tolerances

Surface flatness:  $\lambda/10$ 

Surface quality: 20-10

Thickness:  $\pm 0.1$ mm

Bevel: 0.3mm x 45° typical

Diameter: +0, -0.1mm

Parallelism:  $\leq 3$ arcmin

Clear aperture: 90%

Material: BK7 or equivalent

## Laser Line Wide Angle Mirrors

Wavelength Range (nm)	Diameter, D (mm)	Thickness, t (mm)	Rear Surface	Reflectance (%)	Angle of Incidence (°)	Price	PART NUMBER
405	15.0	3.0	Ground	$\geq 99.0$	0-45	\$ 115.00	<b>034-2811</b>
405	25.4	5.0	Polished	$\geq 99.0$	0-45	\$ 125.00	<b>034-2815</b>
405	30.0	5.0	Polished	$\geq 99.0$	0-45	\$ 175.00	<b>034-2816</b>
405	50.0	8.0	Polished	$\geq 99.0$	0-45	\$ 245.00	<b>034-2818</b>
532	25.4	5.0	Polished	$\geq 99.0$	0-45	\$ 125.00	<b>034-2835</b>
532	30.0	5.0	Polished	$\geq 99.0$	0-45	\$ 175.00	<b>034-2836</b>
532	50.0	8.0	Polished	$\geq 99.0$	0-45	\$ 245.00	<b>034-2838</b>
425-675	15.0	3.0	Ground	$\geq 99.0$	0-45	\$ 175.00	<b>034-2841</b>
425-675	25.4	5.0	Polished	$\geq 99.0$	0-45	\$ 225.00	<b>034-2845</b>
425-675	30.0	5.0	Polished	$\geq 99.0$	0-45	\$ 245.00	<b>034-2846</b>
425-675	50.0	8.0	Polished	$\geq 99.0$	0-45	\$ 375.00	<b>034-2848</b>
780	15.0	3.0	Ground	$\geq 99.0$	0-45	\$ 115.00	<b>034-2851</b>
780	25.4	5.0	Polished	$\geq 99.0$	0-45	\$ 125.00	<b>034-2855</b>
780	30.0	5.0	Polished	$\geq 99.0$	0-45	\$ 175.00	<b>034-2856</b>
830	15.0	3.0	Ground	$\geq 99.0$	0-45	\$ 115.00	<b>034-2861</b>
830	25.4	5.0	Polished	$\geq 99.0$	0-45	\$ 125.00	<b>034-2865</b>
830	30.0	5.0	Polished	$\geq 99.0$	0-45	\$ 175.00	<b>034-2866</b>
1064	25.4	5.0	Polished	$\geq 99.0$	0-45	\$ 215.00	<b>034-2875</b>
1064	30.0	5.0	Polished	$\geq 99.0$	0-45	\$ 225.00	<b>034-2876</b>
1064	50.0	8.0	Polished	$\geq 99.0$	0-45	\$ 295.00	<b>034-2878</b>
1300	15.0	3.0	Ground	$\geq 99.0$	0-45	\$ 175.00	<b>034-2881</b>
1300	25.4	5.0	Polished	$\geq 99.0$	0-45	\$ 225.00	<b>034-2885</b>
1300	30.0	5.0	Polished	$\geq 99.0$	0-45	\$ 315.00	<b>034-2886</b>
1550	15.0	3.0	Ground	$\geq 99.0$	0-45	\$ 175.00	<b>034-2891</b>
1550	25.4	5.0	Polished	$\geq 99.0$	0-45	\$ 225.00	<b>034-2895</b>
1550	30.0	5.0	Polished	$\geq 99.0$	0-45	\$ 315.00	<b>034-2896</b>

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## Laser Line High Power Mirrors

- High Reflectance at laser line wavelengths
- Designed for use at 45 degrees
- Multilayer dielectric coatings, optimized for design wavelength



### Specifications & Tolerances

Surface flatness:  $\lambda/10$   
 Surface quality: 20-10  
 Thickness:  $\pm 0.1$ mm  
 Bevel: 0.3mm x 45° typical

Diameter: +0, -0.1mm  
 Parallelism:  $\leq 3$ arcmin  
 Clear aperture: 90%  
 Material: BK7 or equivalent

Laser Damage Threshold  
 Wavelength: 193nm 2J/cm<sup>2</sup>  
                   248nm 4J/cm<sup>2</sup>  
                   266nm 5J/cm<sup>2</sup>  
 (Tested with pulse width =10nsec, repetition 20Hz)

355nm 8J/cm<sup>2</sup>  
 532nm 26.5J/cm<sup>2</sup>  
 1064nm 28J/cm<sup>2</sup>

### Laser Line High Power Mirrors

Wavelength Range (nm)	Diameter, D (mm)	Thickness, t (mm)	Rear Surface	Reflectance (%)	Price	PART NUMBER
193	25.4	5.0	Polished	$\geq 95.0$	\$ 325.00	034-4510
193	30.0	5.0	Polished	$\geq 95.0$	\$ 340.00	034-4512
193	50.0	8.0	Polished	$\geq 95.0$	\$ 495.00	034-4514
248	25.4	5.0	Polished	$\geq 98.0$	\$ 325.00	034-4520
248	30.0	5.0	Polished	$\geq 98.0$	\$ 340.00	034-4522
248	50.0	8.0	Polished	$\geq 98.0$	\$ 495.00	034-4524
266	25.4	5.0	Polished	$\geq 98.0$	\$ 325.00	034-4530
266	30.0	5.0	Polished	$\geq 98.0$	\$ 340.00	034-4532
266	50.0	8.0	Polished	$\geq 98.0$	\$ 495.00	034-4534
355	25.4	5.0	Polished	$\geq 99.0$	\$ 325.00	034-4540
355	30.0	5.0	Polished	$\geq 99.0$	\$ 340.00	034-4542
355	50.0	8.0	Polished	$\geq 99.0$	\$ 495.00	034-4544
532	25.4	5.0	Polished	$\geq 99.0$	\$ 215.00	034-4550
532	30.0	5.0	Polished	$\geq 99.0$	\$ 225.00	034-4552
532	50.0	8.0	Polished	$\geq 99.0$	\$ 425.00	034-4554
1064	25.4	5.0	Polished	$\geq 99.0$	\$ 325.00	034-4560
1064	30.0	5.0	Polished	$\geq 99.0$	\$ 340.00	034-4562
1064	50.0	8.0	Polished	$\geq 99.0$	\$ 495.00	034-4564

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## Broadband Dielectric Mirrors

- Designs for tunable and white-light applications
- Polished to  $\lambda/10$  minimizing subsurface structure
- $\leq 3$  arcmin parallelism
- 30-100 dielectric layer designs for high reflectance
- Designed for 45 degree angle of incidence
- Standard diameters from 12.7 to 50.8mm



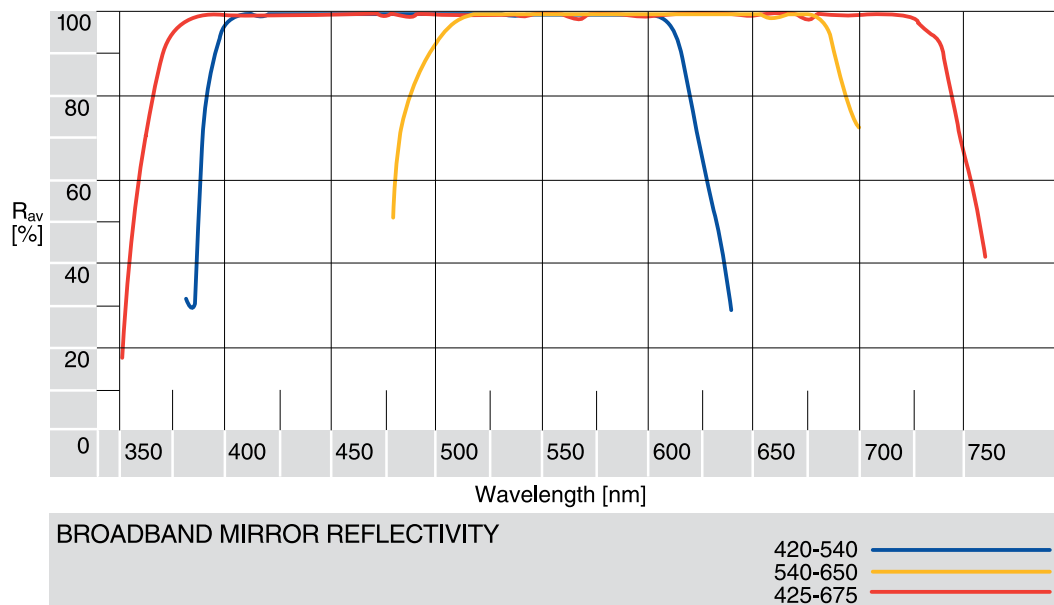
These mirrors have the same exceptional specifications as our laser mirrors except that they use special multilayer coatings to achieve a very high degree of reflectance for both s- and p-polarizations over a broad wavelength range. For white light or tunable laser use these mirrors provide the ultimate in high reflectance and insignificant polarization effect.

The reflectance of these coatings is consistently greater than 99.5% average. However, this figure includes very small dips in the p-reflectance which can never be completely eliminated. The s-polarization component has a reflectance greater than 99.9% over the entire range. (See curves below and on opposite page)

## Specifications & Tolerances

Surface flatness:  $\lambda/10$   
 Surface quality: 20-10  
 Thickness:  $\pm 0.1$ mm  
 Bevel: 0.2mmx45° typical  
 Durability: to MIL-C-675

Reflectance:  $R > 99.0\%$  (45° incidence)  
 Diameter: +0, -0.1mm  
 Parallelism:  $\leq 3$ arcmin  
 Clear aperture:  $> 90\%$  diameter  
 Material: BK7, grade A

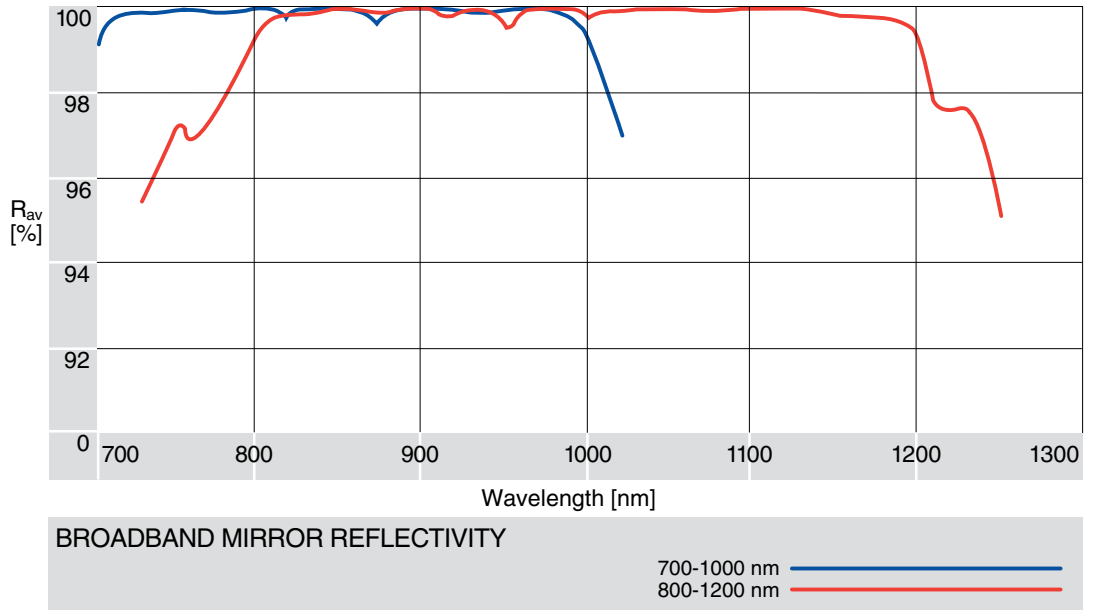


*Because the coatings on these Broadband Mirrors cover a very wide portion of the visible spectrum, they are ideal for imaging and data transfer applications where the spectral information is important. The coatings covering the entire visible spectrum have a slightly lower reflectivity than the other two coatings (which, on the other hand, are better matched, spectrally, to many detectors and electronic vision systems).*

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- Filter & Apertures



**Broadband Mirrors**

Wavelength Range (nm)	Diameter, D (mm)	Thickness, t (mm)	Rear Surface	Reflectance (%)	Price	PART NUMBER
420-540	12.7	5.0	Polished	≥99.0	\$ 74.00	<b>034-2270</b>
420-540	19.1	5.0	Polished	≥99.0	\$ 84.00	<b>034-2275</b>
420-540	25.4	5.0	Polished	≥99.0	\$ 100.00	<b>034-2280</b>
420-540	30.0	5.0	Polished	≥99.0	\$ 121.00	<b>034-2290</b>
420-540	50.0	8.0	Polished	≥99.0	\$ 231.00	<b>034-2330</b>
420-540	50.8	8.0	Polished	≥99.0	\$ 231.00	<b>034-2340</b>
420-480	12.7	5.0	Polished	≥99.5	\$ 100.00	<b>034-0440</b>
420-480	19.1	5.0	Polished	≥99.5	\$ 116.00	<b>034-0445</b>
420-480	25.4	5.0	Polished	≥99.5	\$ 121.00	<b>034-0450</b>
420-480	30.0	5.0	Polished	≥99.5	\$ 131.00	<b>034-0460</b>
420-480	50.0	8.0	Polished	≥99.5	\$ 205.00	<b>034-0470</b>
420-480	50.8	8.0	Polished	≥99.5	\$ 205.00	<b>034-0480</b>
425-675	12.7	5.0	Polished	≥99.0	\$ 74.00	<b>034-2220</b>
425-675	19.1	5.0	Polished	≥99.0	\$ 84.00	<b>034-2225</b>
425-675	25.4	5.0	Polished	≥99.0	\$ 100.00	<b>034-2230</b>
425-675	30.0	5.0	Polished	≥99.0	\$ 121.00	<b>034-2240</b>
425-675	50.8	8.0	Polished	≥99.0	\$ 231.00	<b>034-2260</b>
480-540	12.7	5.0	Polished	≥99.5	\$ 100.00	<b>034-0490</b>
480-540	15.0	5.0	Ground	≥99.5	\$ 110.00	<b>034-0493</b>
480-540	19.1	5.0	Polished	≥99.5	\$ 116.00	<b>034-0495</b>
480-540	20.0	5.0	Gound	≥99.5	\$ 118.00	<b>034-0520</b>
480-540	25.0	5.0	Polished	≥99.5	\$ 121.00	<b>034-0530</b>
480-540	25.4	5.0	Polished	≥99.5	\$ 121.00	<b>034-0550</b>
480-540	30.0	5.0	Polished	≥99.5	\$ 131.00	<b>034-0560</b>
480-540	50.0	8.0	Polished	≥99.5	\$ 205.00	<b>034-0570</b>
480-540	50.8	8.0	Polished	≥99.5	\$ 205.00	<b>034-0580</b>
540-660	12.7	5.0	Polished	≥99.0	\$ 74.00	<b>034-2350</b>
540-660	19.1	5.0	Polished	≥99.0	\$ 84.00	<b>034-2355</b>
540-660	25.4	5.0	Polished	≥99.0	\$ 100.00	<b>034-2360</b>
540-660	30.0	5.0	Polished	≥99.0	\$ 121.00	<b>034-2370</b>
540-660	50.0	8.0	Polished	≥99.0	\$ 231.00	<b>034-2380</b>
540-660	50.8	8.0	Polished	≥99.0	\$ 231.00	<b>034-2390</b>

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## Broadband Mirrors (continued)

Wavelength Range (nm)	Diameter, D (mm)	Thickness, t (mm)	Rear Surface	Reflectance (%)	Price	PART NUMBER
570-640	12.7	5.0	Polished	≥99.5	\$ 100.00	<b>034-0770</b>
570-640	15.0	5.0	Ground	≥99.5	\$ 110.00	<b>034-0773</b>
570-640	19.1	5.0	Polished	≥99.5	\$ 116.00	<b>034-0775</b>
570-640	20.0	5.0	Ground	≥99.5	\$ 118.00	<b>034-0777</b>
570-640	25.0	5.0	Polished	≥99.5	\$ 121.00	<b>034-0779</b>
570-640	25.4	5.0	Polished	≥99.5	\$ 121.00	<b>034-0780</b>
570-640	30.0	5.0	Polished	≥99.5	\$ 131.00	<b>034-0790</b>
570-640	50.0	8.0	Polished	≥99.5	\$ 205.00	<b>034-0880</b>
570-640	50.8	8.0	Polished	≥99.5	\$ 205.00	<b>034-0890</b>
630-700	12.7	5.0	Polished	≥99.5	\$ 63.00	<b>034-0990</b>
630-700	19.1	5.0	Polished	≥99.5	\$ 79.00	<b>034-0995</b>
630-700	25.4	5.0	Polished	≥99.5	\$ 100.00	<b>034-1110</b>
630-700	30.0	5.0	Polished	≥99.5	\$ 105.00	<b>034-1120</b>
630-700	50.8	8.0	Polished	≥99.5	\$ 205.00	<b>034-1140</b>
770-840	12.7	5.0	Polished	≥99.5	\$ 100.00	<b>034-1150</b>
770-840	15.0	5.0	Ground	≥99.5	\$ 110.00	<b>034-1153</b>
770-840	19.1	5.0	Polished	≥99.5	\$ 116.00	<b>034-1155</b>
770-840	20.0	5.0	Ground	≥99.5	\$ 118.00	<b>034-1157</b>
770-840	25.0	5.0	Polished	≥99.5	\$ 121.00	<b>034-1159</b>
770-840	25.4	5.0	Polished	≥99.5	\$ 121.00	<b>034-1160</b>
770-840	30.0	5.0	Polished	≥99.5	\$ 131.00	<b>034-1170</b>
770-840	50.0	8.0	Polished	≥99.5	\$ 205.00	<b>034-1180</b>
770-840	50.8	8.0	Polished	≥99.5	\$ 205.00	<b>034-1190</b>
700-1000	12.7	5.0	Polished	≥99.0	\$ 84.00	<b>034-1200</b>
700-1000	19.1	5.0	Polished	≥99.0	\$ 105.00	<b>034-1205</b>
700-1000	25.4	5.0	Polished	≥99.0	\$ 116.00	<b>034-1210</b>
700-1000	50.8	8.0	Polished	≥99.0	\$ 231.00	<b>034-1215</b>
800-1200	12.7	5.0	Polished	≥99.0	\$ 116.00	<b>034-2460</b>
800-1200	19.1	5.0	Polished	≥99.0	\$ 126.00	<b>034-2465</b>
800-1200	25.4	5.0	Polished	≥99.0	\$ 137.00	<b>034-2470</b>
800-1200	50.8	8.0	Polished	≥99.0	\$ 268.00	<b>034-2480</b>

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### Ultra Broadband Mirrors

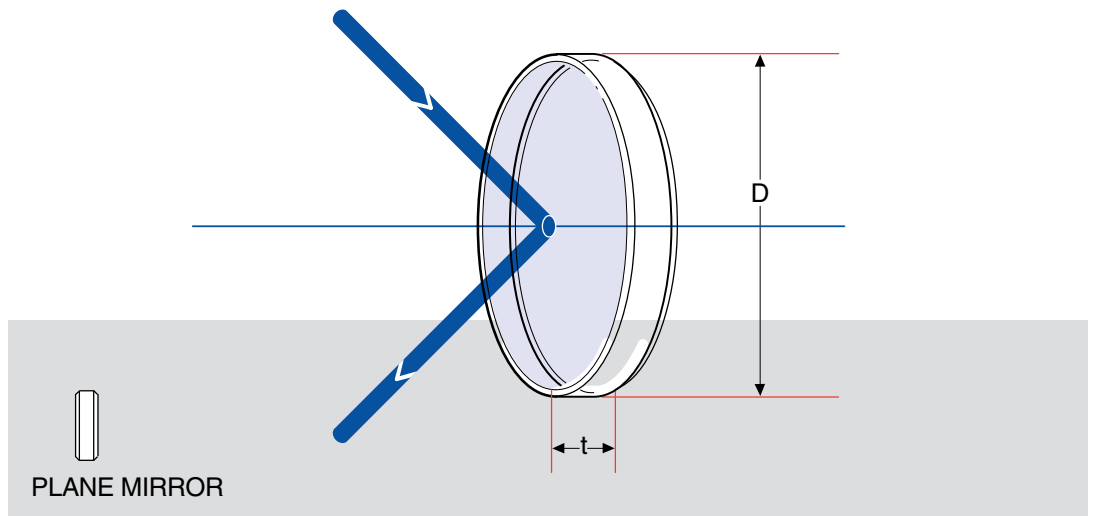
- All Dielectric multilayer coated
- Visible, near infrared and other multiple wavelengths are covered with a single mirror



### Specifications & Tolerances

Surface flatness:  $\lambda/10$   
 Surface quality: 40-20  
 Thickness:  $\pm 0.1\text{mm}$   
 Bevel: 0.2mm x 45° typical

Diameter: +0, -0.1mm  
 Parallelism:  $\leq 3\text{arcmin}$   
 Clear aperture: 90%  
 Material: BK7 or equivalent



### Ultra Broadband Mirrors

Wavelength Range (nm)	Diameter, D (mm)	Thickness, t (mm)	Rear Surface	Reflectance (%)	Price	PART NUMBER
245-400	25.4	5.0	Polished	Ave $\geq 97.0$	\$ 325.00	<b>034-2712</b>
245-400	30.0	5.0	Polished	Ave $\geq 97.0$	\$ 340.00	<b>034-2713</b>
245-700	25.4	5.0	Polished	Ave $\geq 97.0$	\$ 435.00	<b>034-2722</b>
245-700	30.0	5.0	Polished	Ave $\geq 97.0$	\$ 450.00	<b>034-2723</b>
400-1100	25.4	5.0	Polished	Ave $\geq 98.0$	\$ 295.00	<b>034-2732</b>
400-1100	30.0	5.0	Polished	Ave $\geq 98.0$	\$ 310.00	<b>034-2733</b>
400-1100	50.0	8.0	Polished	Ave $\geq 98.0$	\$ 460.00	<b>034-2725</b>
400-2000	25.4	5.0	Polished	Ave $\geq 98.0$	\$ 435.00	<b>034-2742</b>
400-2000	30.0	5.0	Polished	Ave $\geq 98.0$	\$ 450.00	<b>034-2743</b>
400-2000	50.0	8.0	Polished	Ave $\geq 98.0$	\$ 590.00	<b>034-2745</b>
300-2000	25.4	5.0	Polished	Ave $\geq 97.0$	\$ 575.00	<b>034-2752</b>
300-2000	30.0	5.0	Polished	Ave $\geq 97.0$	\$ 590.00	<b>034-2753</b>
300-2000	50.0	8.0	Polished	Ave $\geq 97.0$	\$ 735.00	<b>034-2755</b>

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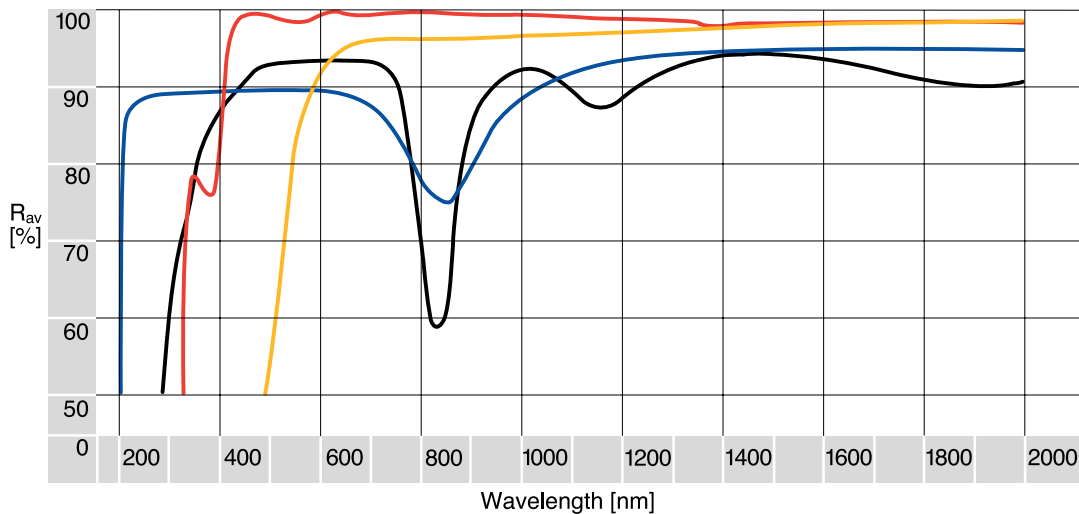
## Ultra-broadband Metallic Mirrors

- High reflectance over a broad spectral range
- Enhanced reflectance in the visible range
- Effective over wide angles of incidence
- Standard diameters from 12.7 to 50.8mm



These mirrors provide a high reflectance over a very broad spectral bandwidth. They are manufactured by coating first with a reflective metal film and then with a dielectric overcoat for protection and enhancement of the reflectivity. Coatings offered include aluminum, silver and gold. Each has a different spectral characteristic as shown in the curves. Aluminum provides a good general purpose visible range mirror. Silver has a very high reflectance over the visible and near infra-red range and gold is the preferred coating for infra-red applications at wavelengths greater than 2 microns. We use only highly polished laser grade substrates with  $\lambda/10$  surfaces and low scatter. Unlike dielectric coatings, these mirrors can be used over a wide range of angles of incidence. However, they do affect the state of polarization of the reflected beam.

Standard sizes are 1/2 inch, 3/4 inch, 1 inch and 2 inches in diameter - other shapes and sizes are available on request.



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AOI: 45°

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ENHANCED UV ALUMINUM

ENHANCED SILVER  
PROTECTED GOLD

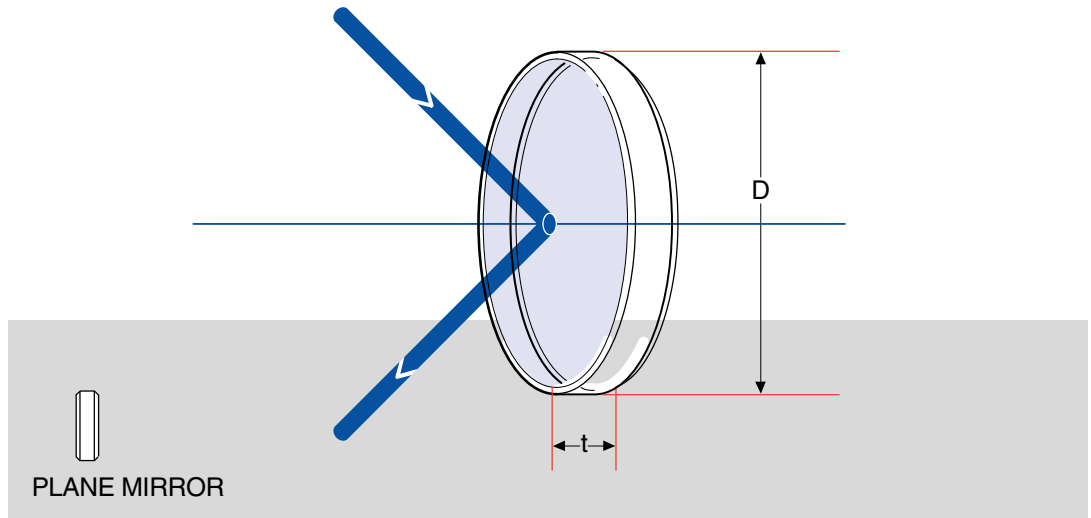
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### Specifications & Tolerances

Surface flatness:  $\lambda/10$   
 Surface quality: 20-10  
 Thickness:  $\pm 0.1\text{mm}$   
 Bevel:  $0.2\text{mm} \times 45^\circ$  typical  
 Laser damage threshold:  $0.5\text{J}/\text{cm}^2$  for 10ns pulse  
 Durability: to MIL-C-675

Diameter:  $+0, -0.2\text{mm}$   
 Parallelism:  $\leq 3\text{arcmin}$   
 Clear aperture:  $>90\%$  diameter  
 Material: BK7, grade A

### Ultra-broadband Metallic Mirrors

Type	Reflectance (%)	Wavelength Range (nm)	Diameter, D (inches) (mm)		Thickness, t (mm)	Price	PART NUMBER
UV Enhanced Aluminum	>85.0av	250-400	0.50	12.7	5.0	\$ 47.00	033-4340
UV Enhanced Aluminum	>85.0av	250-400	0.75	19.1	5.0	\$ 58.00	033-4350
UV Enhanced Aluminum	>85.0av	250-400	1.00	25.4	5.0	\$ 65.00	033-4360
UV Enhanced Aluminum	>85.0av	250-400	2.00	50.8	8.0	\$ 116.00	033-4370
Enhanced Aluminum	>94.0av	400-700	0.50	12.7	5.0	\$ 47.00	033-4440
Enhanced Aluminum	>94.0av	400-700	0.75	19.1	5.0	\$ 58.00	033-4450
Enhanced Aluminum	>94.0av	400-700	1.00	25.4	5.0	\$ 65.00	033-4460
Enhanced Aluminum	>94.0av	400-700	2.00	50.8	8.0	\$ 116.00	033-4470
Enhanced Silver	>96.0av	400-700	0.50	12.7	5.0	\$ 58.00	033-4540
Enhanced Silver	>97.5av	700-2000	0.75	19.1	5.0	\$ 76.00	033-4550
	>96.0av	400-700					
Enhanced Silver	>97.5av	700-2000	1.00	25.4	5.0	\$ 84.00	033-4560
	>96.0av	400-700					
Enhanced Silver	>97.5av	700-2000	2.00	50.8	8.0	\$ 131.00	033-4570
	>96.0av	400-700					
Protected Gold	>96.0av	650-IR	0.50	12.7	5.0	\$ 74.00	033-4640
Protected Gold	>96.0av	650-IR	0.75	19.1	5.0	\$ 89.00	033-4650
Protected Gold	>96.0av	650-IR	1.00	25.4	5.0	\$ 100.00	033-4660
Protected Gold	>96.0av	650-IR	2.00	50.8	8.0	\$ 158.00	033-4670

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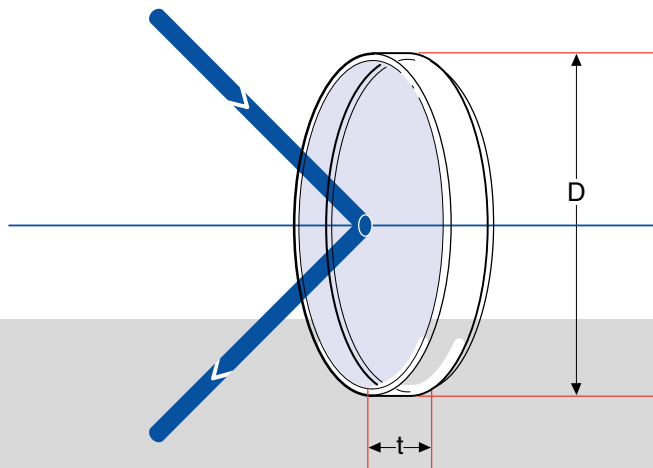
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## Metallized Mirrors, Round

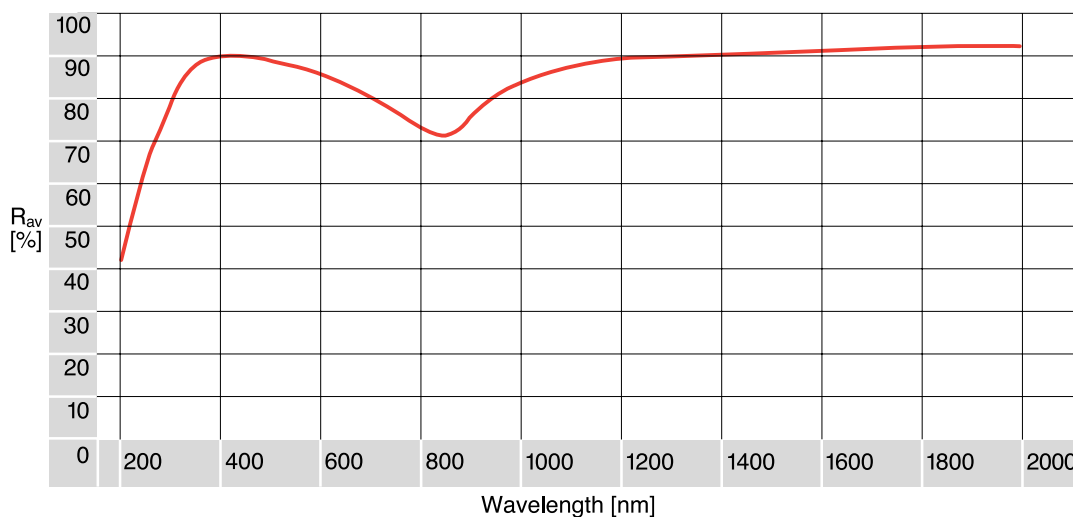
- High reflectance over entire visible and NIR spectrum
- Aluminum overcoated with  $MgF_2$  for high durability
- Ideal for non-critical applications
- Available with  $\lambda/4$ ,  $\lambda/10$ , and  $\lambda/20$  surface flatness
- Synthetic quartz and Zerodur® available for high thermal stability
- Standard diameters from 5.0 to 152.4mm

### Specifications & Tolerances

Surface flatness:  $\lambda/4$ ,  $\lambda/10$ ,  $\lambda/20$       Diameter: +0, -0.2mm  
 Surface quality: 40-20      Parallelism:  $\leq 3$ arcmin  
 Thickness:  $\pm 0.1$ mm  
 Clear aperture: >90% diameter  
 Bevel: 0.2mmx45° typical  
 Laser damage threshold: 0.4J/cm<sup>2</sup> for 532nm @10ns pulse  
 Durability: to MIL-C-675  
 Reflectance: R>88% (350-2000nm)



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 Multi-Element  
 Micro Optics  
**Mirrors**  
 Prisms  
 Substrates & Windows  
 Beamsplitters  
 Polarizers  
 Filter & Apertures

## Metallized Mirrors, Round

Flatness	Diameter, D (inches) (mm)		Thickness, t (mm)	Material	Price	PART NUMBER
$\lambda/4$	0.20	5.0	3.0	BK7	\$ 27.00	033-0230
$\lambda/4$	0.39	10.0	3.0	BK7	\$ 29.00	033-0240
$\lambda/4$	0.50	12.7	5.0	BK7	\$ 32.00	033-0250
$\lambda/4$	0.79	20.0	5.0	BK7	\$ 34.00	033-0260
$\lambda/4$	0.98	25.0	5.0	BK7	\$ 37.00	033-0270
$\lambda/4$	1.00	25.4	5.0	BK7	\$ 39.00	033-0280
$\lambda/4$	1.18	30.0	5.0	BK7	\$ 42.00	033-0290
$\lambda/4$	1.57	40.0	6.0	BK7	\$ 53.00	033-0330
$\lambda/4$	1.97	50.0	8.0	BK7	\$ 63.00	033-0340
$\lambda/4$	2.00	50.8	8.0	BK7	\$ 63.00	033-0350
$\lambda/4$	3.00	76.2	12.0	BK7	\$ 205.00	033-0355
$\lambda/4$	3.15	80.0	12.0	BK7	\$ 225.00	033-0360
$\lambda/4$	3.94	100.0	15.0	BK7	\$ 225.00	033-0370
$\lambda/4$	4.00	101.6	15.0	BK7	\$ 265.00	033-0375
$\lambda/4$	5.91	150.0	20.0	BK7	\$ 650.00	033-0380
$\lambda/4$	6.00	152.4	20.0	BK7	\$ 725.00	033-0385
$\lambda/10$	0.20	5.0	3.0	BK7	\$ 29.00	033-0440
$\lambda/10$	0.39	10.0	5.0	BK7	\$ 34.00	033-0450
$\lambda/10$	0.39	10.0	3.0	BK7	\$ 32.00	033-0460
$\lambda/10$	0.50	12.7	5.0	BK7	\$ 35.00	033-0470
$\lambda/10$	0.59	15.0	5.0	BK7	\$ 38.00	033-0480
$\lambda/10$	0.59	15.0	3.0	BK7	\$ 37.00	033-0490
$\lambda/10$	0.79	20.0	3.0	BK7	\$ 40.00	033-0550
$\lambda/10$	0.79	20.0	5.0	BK7	\$ 41.00	033-0560
$\lambda/10$	0.98	25.0	5.0	BK7	\$ 46.00	033-0570
$\lambda/10$	1.00	25.4	5.0	BK7	\$ 46.00	033-0660
$\lambda/10$	1.18	30.0	5.0	BK7	\$ 53.00	033-0670
$\lambda/10$	1.57	40.0	6.0	BK7	\$ 74.00	033-0680
$\lambda/10$	1.97	50.0	8.0	BK7	\$ 77.00	033-0770
$\lambda/10$	2.00	50.8	8.0	BK7	\$ 77.00	033-0780
$\lambda/10$	3.00	76.2	12.0	BK7	\$ 245.00	033-0790
$\lambda/10$	3.15	80.0	12.0	BK7	\$ 250.00	033-0890
$\lambda/10$	4.00	101.6	17.0	Zerodur®	\$ 730.00	033-1120
$\lambda/10$	6.00	152.4	25.0	Zerodur®	\$ 1,395.00	033-1140
$\lambda/20$	0.39	10.0	6.0	SFS	\$ 50.00	033-1145
$\lambda/20$	0.50	12.7	6.0	SFS	\$ 63.00	033-1150
$\lambda/20$	0.59	15.0	6.0	SFS	\$ 65.00	033-1153
$\lambda/20$	0.79	20.0	6.0	SFS	\$ 60.00	033-1155
$\lambda/20$	0.98	25.0	6.0	SFS	\$ 75.00	033-1160
$\lambda/20$	1.00	25.4	6.0	SFS	\$ 79.00	033-1170
$\lambda/20$	1.18	30.0	6.0	SFS	\$ 95.00	033-1175
$\lambda/20$	1.57	40.0	8.0	SFS	\$ 135.00	033-1180
$\lambda/20$	1.97	50.0	10.0	SFS	\$ 231.00	033-1190
$\lambda/20$	2.00	50.8	10.0	SFS	\$ 231.00	033-1220

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**Mirrors**

Prisms

Substrates &amp; Windows

Beamsplitters

Polarizers

Filter &amp; Apertures

## Metallized Mirrors, Square & Rectangular

- Large cross-sections at 45 degree angle of incidence
- Aluminum overcoated with  $MgF_2$  for high durability
- Easy for OEM mounting
- Available with  $\lambda/4$ ,  $\lambda/10$ , and  $\lambda/20$  surface flatness
- Synthetic Fused Silica available for high thermal stability



*While the round mirrors fit perfectly in the Mirror Mounts described on pages 247-267, these square and rectangular mirrors are often very convenient to mount in prototype and experimental setups. The rectangular shapes are most useful in beam steering applications at 45 degrees.*

These square and rectangular metallized mirrors are identical to the round metallized mirrors described on the preceding three pages. The rectangular shapes are useful at 45 degrees since they present a more nearly square cross section to the beam.

The reflectance curve for these mirrors may be found on page 130. As with the round metallized mirrors there are three levels of flatness available:  $\lambda/4$ ,  $\lambda/10$  and  $\lambda/20$ . The  $\lambda/20$  mirrors have a synthetic quartz substrate for thermal stability.

A selection of sizes are offered as standard. Other sizes can be supplied on request. Please call. Mirrors up to 1 inch square have a ground rear surface but all other mirrors are polished on the rear face.

### Specifications & Tolerances

Surface flatness:  $\lambda/4$ ,  $\lambda/10$ ,  $\lambda/20$

Surface quality: 40-20

Parallelism:  $\leq 3$ arcmin

Clear aperture:  $>90\%$  diameter

Bevel:  $0.2\text{mm} \times 45^\circ$  typical

Durability: to MIL-C-675

Reflectance:  $R > 88\%$  (350-1550nm)

Dimensions:  $+0$ ,  $-0.1\text{mm}$ ,  
except  $100 \times 100\text{mm}$   $+0$ ,  $-0.2\text{mm}$

Thickness:  $\pm 0.1\text{mm}$ ,

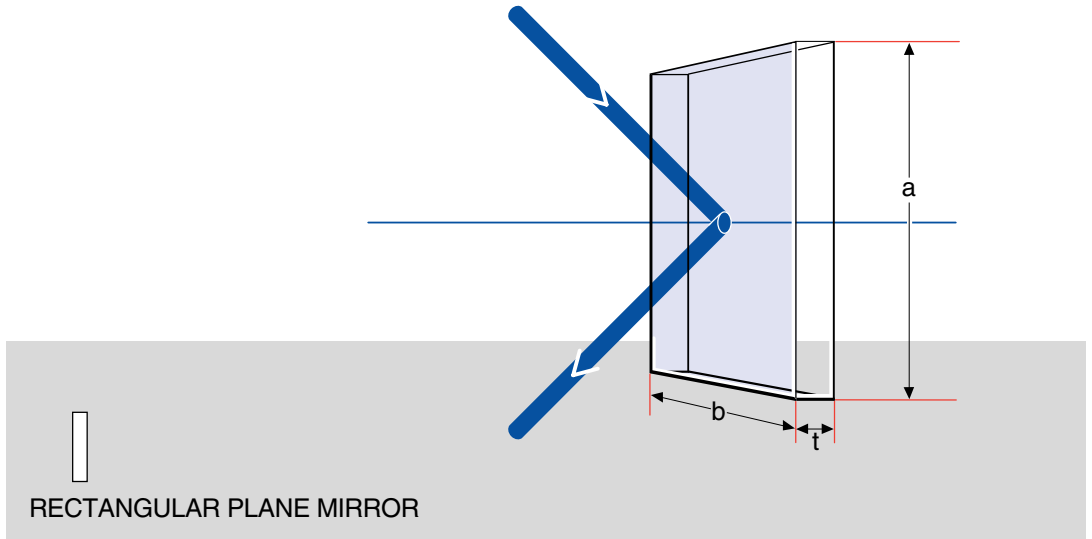
except  $100 \times 100\text{mm}$   $\pm 0.2\text{mm}$

Laser damage threshold:  $0.4\text{J}/\text{cm}^2$  for 532nm  
@ 10ns pulse (measured)

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RECTANGULAR PLANE MIRROR

**Metallized Mirrors, Square & Rectangular**

Flatness	Dimensions (inches) a x b	Dimensions (mm) a x b	Thickness, t (mm)	Material	Price	PART NUMBER
$\lambda/4$	0.39 x 0.59	10.0 x 15.0	5.0	BK7	\$ 37.00	033-3330
$\lambda/4$	0.50 x 0.50	12.7 x 12.7	3.0	BK7	\$ 37.00	033-2260
$\lambda/4$	0.79 x 0.79	20.0 x 20.0	5.0	BK7	\$ 37.00	033-2280
$\lambda/4$	0.98 x 0.98	25.0 x 25.0	5.0	BK7	\$ 45.00	033-2330
$\lambda/4$	0.98 x 1.38	25.0 x 35.0	5.0	BK7	\$ 45.00	033-3340
$\lambda/4$	1.18 x 1.18	30.0 x 30.0	5.0	BK7	\$ 53.00	033-2340
$\lambda/4$	1.57 x 1.57	40.0 x 40.0	6.0	BK7	\$ 84.00	033-2350
$\lambda/4$	1.57 x 1.97	40.0 x 50.0	8.0	BK7	\$ 84.00	033-3350
$\lambda/4$	1.97 x 1.97	50.0 x 50.0	8.0	BK7	\$ 84.00	033-2360
$\lambda/4$	3.94 x 3.94	100.0 x 100.0	15.0	BK7	\$ 475.00	033-2370
$\lambda/10$	0.39 x 0.39	10.0 x 10.0	3.0	BK7	\$ 35.00	033-2390
$\lambda/10$	0.39 x 0.39	10.0 x 10.0	5.0	BK7	\$ 35.00	033-2380
$\lambda/10$	0.39 x 0.59	10.0 x 15.0	5.0	BK7	\$ 42.00	033-3370
$\lambda/10$	0.50 x 0.50	12.7 x 12.7	3.0	BK7	\$ 44.00	033-2420
$\lambda/10$	0.59 x 0.59	15.0 x 15.0	3.0	BK7	\$ 42.00	033-2440
$\lambda/10$	0.59 x 0.59	15.0 x 15.0	5.0	BK7	\$ 42.00	033-2450
$\lambda/10$	0.59 x 0.98	15.0 x 25.0	5.0	BK7	\$ 45.00	033-3375
$\lambda/10$	0.79 x 0.79	20.0 x 20.0	3.0	BK7	\$ 47.00	033-2470
$\lambda/10$	0.79 x 0.79	20.0 x 20.0	5.0	BK7	\$ 47.00	033-2460
$\lambda/10$	0.98 x 0.98	25.0 x 25.0	5.0	BK7	\$ 53.00	033-2490
$\lambda/10$	0.98 x 1.38	25.0 x 35.0	5.0	BK7	\$ 74.00	033-3380
$\lambda/10$	1.18 x 1.18	30.0 x 30.0	5.0	BK7	\$ 74.00	033-2550
$\lambda/10$	1.57 x 1.97	40.0 x 50.0	8.0	Pyrex	\$ 105.00	033-3390
$\lambda/10$	1.97 x 1.97	50.0 x 50.0	8.0	Pyrex	\$ 105.00	033-2580
$\lambda/10$	3.94 x 3.94	100.0 x 100.0	15.0	Pyrex	\$ 420.00	033-2590
$\lambda/20$	0.98 x 0.98	25.0 x 25.0	6.0	Fused Silica	\$ 105.00	033-2680

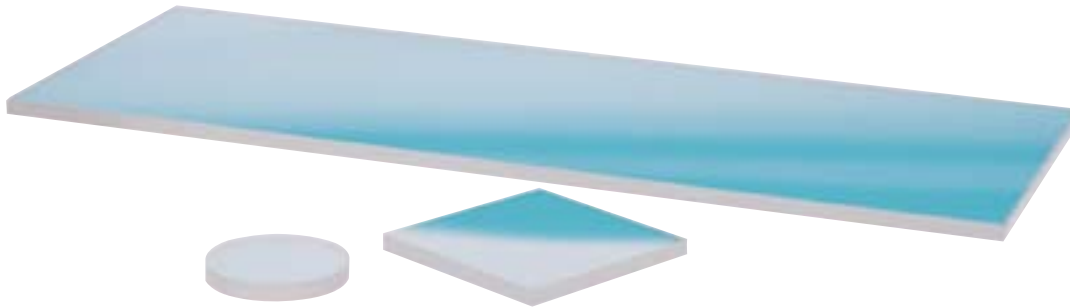
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More sizes are available. Please call if you don't see the size you need.

## Ultra-Violet Hot Mirrors

- **Super HeatBuster™ Ultra-Violet Hot Mirrors**
- Excellent visible transmission
- High infrared reflectance
- Superior Ultra-Violet rejection
- Durable coatings will survive extreme heat and high humidity



Here we offer Super HeatBuster™ Ultra-Violet hot mirrors. Hot mirrors are perfect for applications that require high reflectance in the infrared spectrum and excellent transmission in the visible. In addition Super HeatBuster™ Ultra-Violet Hot mirrors offer superior Ultra-Violet rejection with less than 1% transmission from 200 to 390nm.

These hot mirrors are manufactured using a special proprietary all dielectric coating technique that yields the most durable commercially available product. Super HeatBuster™ Ultra-Violet hot mirrors will pass MIL-C-675, snap tape tests and are capable of operation at temperatures as high as 700 degrees C. They will also operate and survive in extreme humidity environments.

Hot mirrors are available from stock in one inch and two inch diameter round or one inch, two inch and four inch square configurations. Larger sheets are also available and may be cut into custom sizes.

### Specifications & Tolerances

Dimensions: +/-0.5mm

Thickness: +/-0.3mm

Surface flatness:  $3\lambda$  per inch

Surface quality: 80-50

AOI: 0-15°

Coating: T>85% avg 420-680nm

T<1.0% avg 200-380nm

T<5.0% avg 730-1500nm

Material: Borofloat™ glass

Max temperature: 700°C

### Ultra-Violet Hot Mirrors

Mirror Shape	Dimensions (Inches) (mm)		Thickness (mm)	Price	PART NUMBER
Round	1.00	25.4	3.3	\$ 30.00	<b>034-3010</b>
Round	2.00	50.8	3.3	\$ 65.00	<b>034-3020</b>
Square	1.00 x 1.00	25.4 x 25.4	3.3	\$ 30.00	<b>034-3060</b>
Square	2.00 x 2.00	50.8 x 50.8	3.3	\$ 65.00	<b>034-3070</b>

HeatBuster™ is a registered trademark of DSI.



## Spherical Mirrors

- Chromatic aberration free for concentrating, collecting, and imaging applications
- Aluminum overcoated with  $MgF_2$  for high durability
- Polished rear surface for easy mounting
- Standard diameters from 15 to 50.8mm

These mirrors are used for laser beam concentration and quality imaging. They can also be used to improve the light output from projection and illumination systems. All spherical mirrors have a focal length equal to half their radius of curvature. The front concave spherical section is polished on a BK7 substrate and then coated with aluminum and  $MgF_2$ .

Mirrors are offered in several sizes with a wide range of curvatures from 10mm to 4m. Other diameters, diameters greater than 50.8mm, and other radii of curvature are also available. Please call.



## Specifications & Tolerances

Spherical tolerance:  $\lambda/2$

Surface quality: 40-20

Radius of curvature:  $\pm 2\%$

Thickness:  $\pm 0.2\text{mm}$

Durability: to MIL-C-675

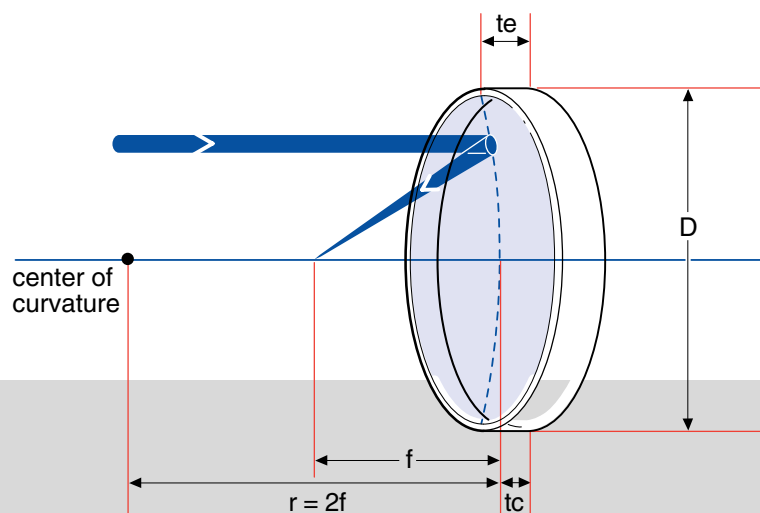
Reflectance:  $R > 85\%$  (400-1550nm)

Diameter: +0, -0.2mm

Clear aperture:  $> 85\%$  diameter

Bevel: 0.2mm x  $45^\circ$  typical

Material: BK7

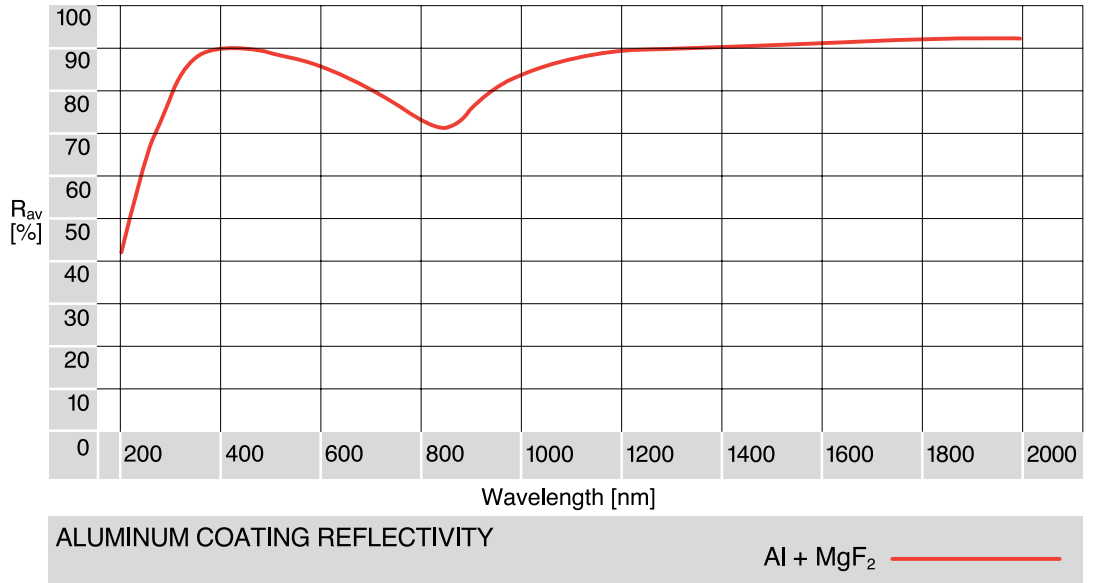


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**Spherical Mirrors**

Radius of Curvature, r (mm)	Diameter, D (mm)	Edge, te (mm)	Center, tc (mm)	Price	PART NUMBER
10	15.0	7.0	3.6	\$ 120.00	035-0100
20	15.0	5.0	3.5	\$ 120.00	035-0102
30	15.0	5.0	4.0	\$ 120.00	035-0104
40	15.0	5.0	4.3	\$ 120.00	035-0105
50	15.0	5.0	4.4	\$ 120.00	035-0106
50	25.0	7.0	5.4	\$ 110.00	035-0120
50	25.4	7.0	5.4	\$ 110.00	035-0130
50	50.0	13.0	6.3	\$ 173.00	035-0140
50	50.8	13.0	6.3	\$ 173.00	035-0150
100	15.0	5.0	4.7	\$ 120.00	035-0158
100	25.0	5.0	4.2	\$ 84.00	035-0160
100	25.4	5.0	4.2	\$ 84.00	035-0170
100	50.0	10.0	6.8	\$ 158.00	035-0180
100	50.8	10.0	6.8	\$ 158.00	035-0190
250	15.0	5.0	4.9	\$ 120.00	035-0198
250	25.0	5.0	4.7	\$ 110.00	035-0220
250	25.4	5.0	4.7	\$ 110.00	035-0230
250	50.0	8.0	6.7	\$ 173.00	035-0240
250	50.8	8.0	6.7	\$ 173.00	035-0250
500	15.0	5.0	4.9	\$ 120.00	035-0258
500	25.0	5.0	4.8	\$ 110.00	035-0260
500	25.4	5.0	4.8	\$ 110.00	035-0270
500	50.0	8.0	7.4	\$ 173.00	035-0280
500	50.8	8.0	7.4	\$ 173.00	035-0290
1000	15.0	5.0	5.0	\$ 120.00	035-0298
1000	25.0	5.0	4.9	\$ 110.00	035-0330
1000	25.4	5.0	4.9	\$ 110.00	035-0340
1000	50.0	8.0	7.7	\$ 173.00	035-0350
1000	50.8	8.0	7.7	\$ 173.00	035-0360
2000	15.0	5.0	5.0	\$ 120.00	035-0368
2000	25.0	5.0	5.0	\$ 110.00	035-0390
2000	50.0	8.0	7.8	\$ 173.00	035-0450
4000	15.0	5.0	5.0	\$ 120.00	035-0458
4000	25.0	5.0	5.0	\$ 110.00	035-0490
4000	50.0	8.0	7.9	\$ 173.00	035-0560

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