Coatings

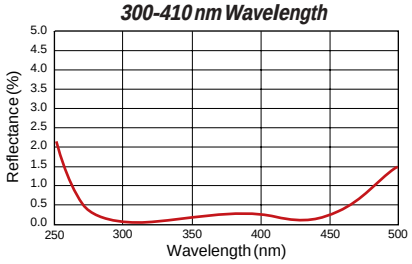
Broadband Antireflection Coatings

- ***Ideal for tunable lasers and laser diodes***
- ***Laser quality lenses and windows available***
- ***Highly durable***

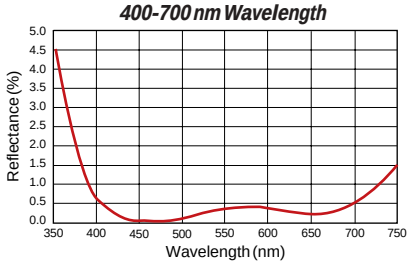
Broadband antireflection coatings are designed to minimize surface reflections over a wide wavelength region. These coatings are made of highly durable, multi-layer dielectric coatings. They are ideal for use with tunable lasers and laser diodes. It is highly recommended that these laser coatings be placed on laser quality substrates.

The coating designs are optimized for use at either 0 or 45 degrees, though they can be used at other angles with a slight decrease in the percent transmission. Zero degree coatings are ideal for use with lenses, windows, or right angle prisms. Forty-five degree coatings are suitable for use on windows, beam samplers (when placed on one side of a window), or littrow prisms.

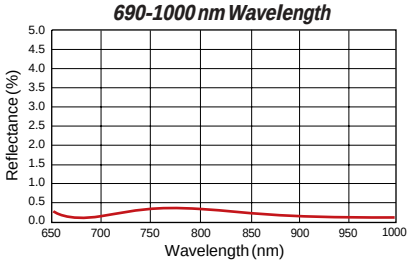
300-410 nm Wavelength



400-700 nm Wavelength



690-1000 nm Wavelength



Specifications

Reflectance: <0.5% average per surface
Durability: Meets MIL-C-675C

LaserLenses™

LaserLenses™ also available.

Broadband Multilayer Antireflection Coatings

Wavelength Range (nm)	Angle of Incidence	Suffix to be added for one side coated	Suffix to be added for two sides coated
300-410	0°	-501	-502
300-410	45°	-503	-504
400-700	0°	-505	-506
400-700	45°	-507	-508
690-1000	0°	-509	-510
690-1000	45°	-511	-512

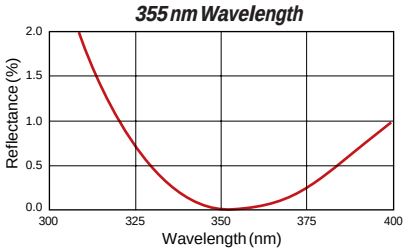
***** Call for quotation. Pricing based on minimum lot charge.

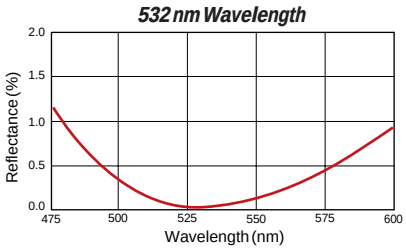
Laser Line V Antireflection Coatings

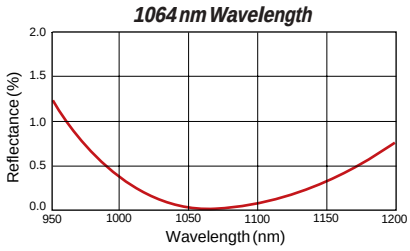
- ***Designed for single wavelength lasers***
- ***High damage thresholds***
- ***Laser quality lenses and windows avialable***

These antireflection coatings are designed and optimized for specific laser lines. They exhibit a high damage threshold and are intended for use with single wavelength lasers, such as Nd: YAG, Excimer, or HeNe. It is highly recommended that these laser coatings be placed on laser quality substrates.

The coating designs are optimized for use at either 0 or 45 degrees, though they can be used at other angles with a slight decrease in the percent transmission. Zero degree coatings are ideal for use with lenses, windows, or right angle prisms. Forty-five degree coatings are suitable for use on windows, beam samplers (when placed on one side of a window) or littrow prisms.







Specifications

Reflectance: <0.25% per surface, 0˚
<0.75% per surface, 45˚
Durability: Meets MIL C-675-C
Laser Damage Threshold*
Pulsed (20 nsec): 10 J/cm^2
CW: 1 MW/cm^2
*Typical damage threshold at 1064 nm on a laser quality substrate.

Laser Windows

Laser windows also available.

Laser Line V Multilayer Antireflection Coatings

Wavelength (nm)	Suffix to be added for one side coated		Suffix to be added for two sides coated	
	0 deg.	45 deg.	0 deg.	45 deg.
248	-343	-443	-344	-444
266	-345	-445	-346	-446
308	-349	-449	-350	-450
325	-351	-451	-352	-452
352	-355	-455	-356	-456
355	-357	-457	-358	-458
488	-363	-463	-364	-464
514	-365	-465	-366	-466
532	-367	-467	-368	-468
633	-375	-475	-376	-476
1064	-379	-479	-380	-480
1300	-381	-481	-382	-482
1550	-383	-483	-384	-484

* Call for quotation. Pricing based on minimum lot charge.

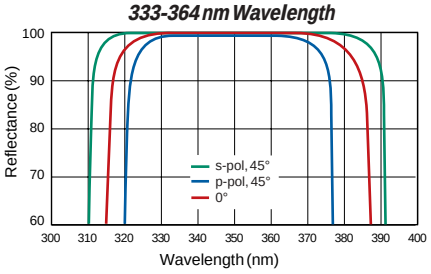
Laser Line High Reflection Coatings

- ***High % reflection***
- ***Dielectric coatings***

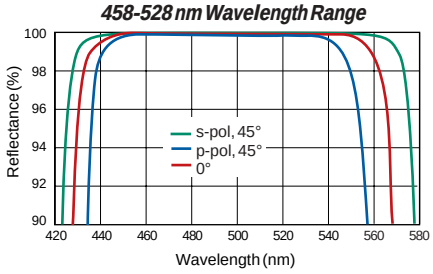
These high reflection coatings are optimized for specific laser lines. Ealing offers a range of standard laser mirrors with these coatings already on them. However, for those applications where a custom mirror diameter, radius of curvature, substrate material or surface polish are required, these high reflection coatings can be used. Please select the appropriate mirror substrate and add the appropriate coating suffix.

Dielectric high reflection coatings are highly recommended over metallic coatings for most laser applications. Dielectric coatings are more durable, have higher damage thresholds, and exhibit a higher percent reflection at their design wavelengths. Please call for a quotation to order a mirror coated with a high reflection coating.

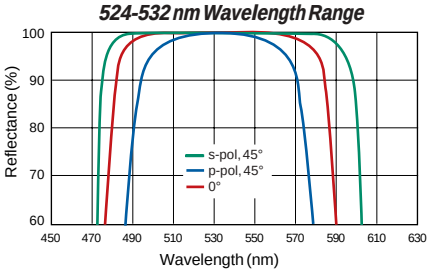
333-364 nm Wavelength



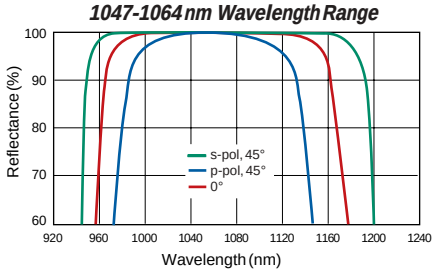
458-528 nm Wavelength Range



524-532 nm Wavelength Range



1047-1064 nm Wavelength Range



Specifications

Reflectance: (See table)
Durability: Meets MIL M-13508-C
Design Angle of Incidence: 0˚ or 45˚

Laser Grade Mirror Substrates

Laser grade mirror substrates also available.

High Reflection Coatings

Wavelength (nm)	Laser Type	Minimum Reflectance (%)	Suffix for 0 deg coating	Suffix for 45 deg coating
209-213	Nd:YAG/YLF	98.0	-131	-132
244-257	Ar Ion	99.0	-133	-134
248	KrF	97.0	-103	-104
262-266	Nd:YAG/YLF	99.0	-137	-138
300-308	Ar Ion	99.5	-107	-108
325 & 442	HeCd	99.5	-117	-118
349-355	Nd:YAG/YLF	99.0	-115	-116
333-364	Ar Ion	99.5	-113	-114
458-528	Ar Ion	99.5	-119	-120
524-532	Nd:YAG/YLF	99.5	-121	-122
520-647	HeNe/Kr	99.0	-123	-124
630-670	HeNe/Diode	99.0	-106	-106
1047-1064	Nd:YAG/YLF	99.5	-125	-126

***** Call for quotation. Pricing based on minimum lot charge.

Metallic Coatings

- ***Excellent for broadband applications***
- ***Range of mirror substrates available***

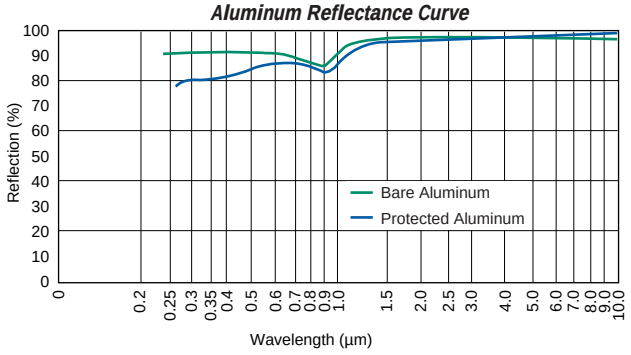
Metallic coatings are excellent for broadband applications. Protected versions are recommended over the bare or enhanced versions for most laboratory applications due to their improved durability. Care must still be taken when cleaning a metal mirror, as these are delicate coatings and susceptible to scratching. To order a mirrors coated with a metallic coating, please select the desired mirror substrate and add the appropriate coating suffix from the chart below.

Aluminum is a good general-purpose reflective coating, with decent reflectance in the visible spectrum. It is the most durable of the metallic coatings and least susceptible to oxidation.

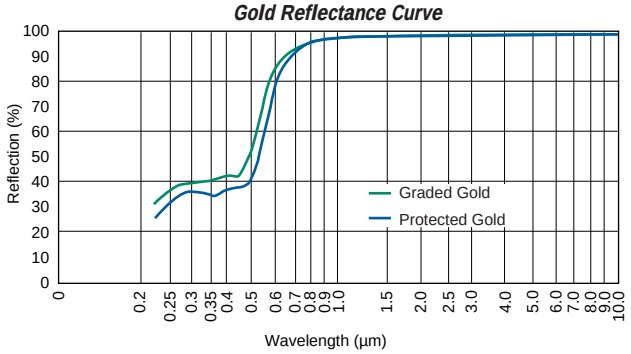
Gold is the most efficient metallic reflector in the infrared, exhibiting greater than 98% reflectance throughout. The graded gold version is essentially a bare gold coating with chromium deposited underneath to help the gold adhere to the substrate.

Silver coatings have the highest reflectivity in the visible spectrum for a metallic coating. However, it is the most susceptible to oxidation. Ealing offers a protected version, which helps to retard this oxidation. An enhanced version is also available for improved reflectance in the visible spectrum.

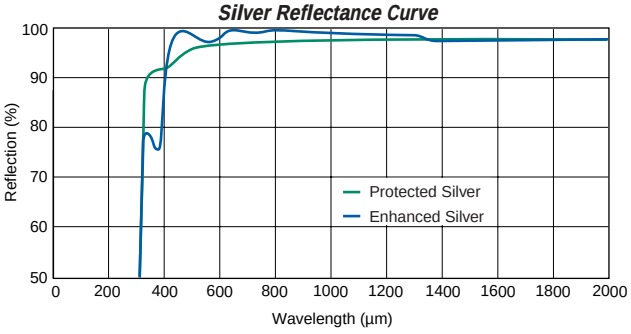
Aluminum Reflectance Curve



Gold Reflectance Curve



Silver Reflectance Curve



Metallic Coatings

Wavelength (nm)	Coating Type	Average Reflectance (%)	Coating Suffix
250 nm-10µm	Bare Aluminum	90.0	-017
300 nm-10µm	Protected Aluminum	80.0	-018
800 nm-10µm	Graded Gold	98.0	-020
800 nm-10µm	Protected Gold	98.0	-021
450 nm-10µm	Enhanced Silver	98.0	-025
500 nm-10µm	Protected Silver	98.0	-022

* Damage threshold is difined at 1064 nm on a laser quality substrate. Call for quotation. Pricing based on minimum lot charge.