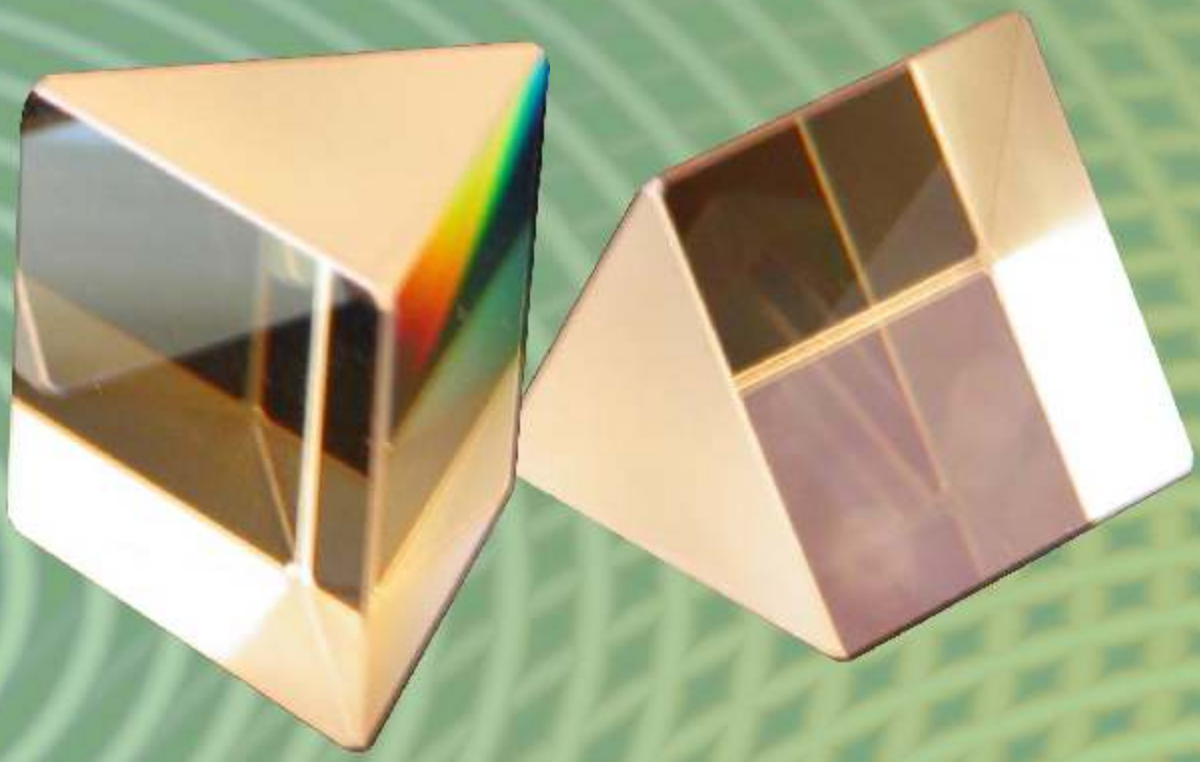
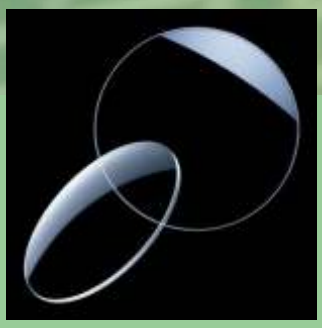


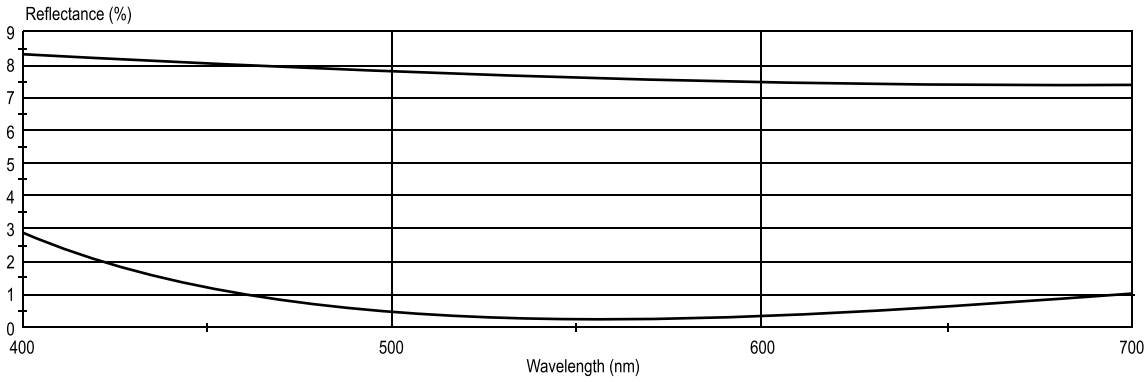
ANTI REFLECTION COATINGS



Anti reflection coatings are transmission enhancement coatings which when deposited on the optics will increase the through put into the optical system, reduce the stray light, and prevent the back surface multiple reflections. They are broadly divided in to three types. Single layer, V-type, broadband coatings.

Single Layer MgF2 Coating

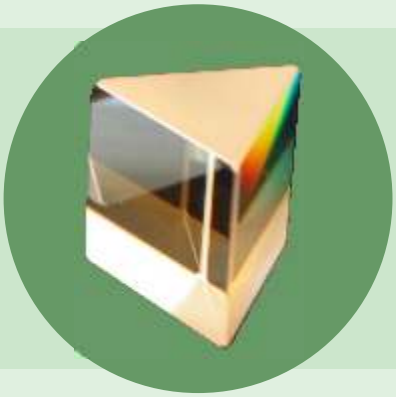
It is the good choice for the index material substrates like SF4, SF10, SF11 glasses, sapphire etc. The low index 1.38 of MgF2 acts as a perfect impedence matching layer between the high index glass and air.

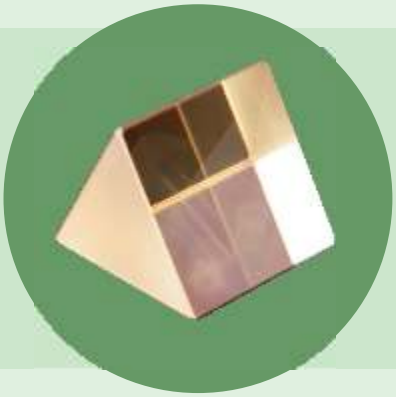


Specification:

Substrate material	: SF4,SF11,SF15, etc.
Coating technology	: Electric beam deposition
Coating type	: Single layer MgF2
Coating performance	: R < 1.2 % @ λ
Clear aperture	: > 85 % of the specified aperture

Applications:
On lens, prisms and optical windows
Note: Other custom made coatings can be done.





Broadband Antireflection Coatings

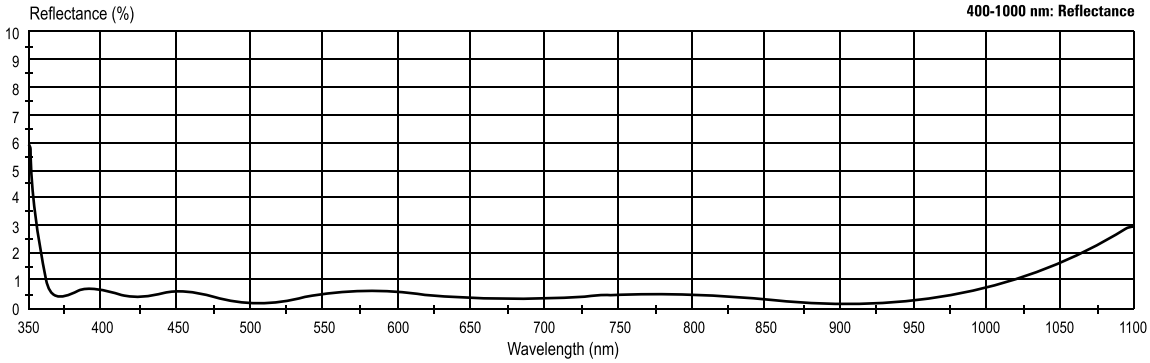
Most of the optical systems works for broadband sources. Hence the optical components in the system are need to be coated with broadband antireflection coating suiting to the source spectrum.

Standard Bands:
400-700 nm, 400-900 nm and 500 – 1100 nm.

Specification:

Substrate material	: BK7, UVFS, SF15, etc.
Coating technology	: Electric beam deposition
Coating type	: Multi layer dielectric
Coating performance	: R < 1 %
Clear aperture	: > 85 % of the specified aperture

Applications:
On lens, prisms and optical windows working for broad band sources
Note: Other custom made coatings can be done.



Anti Reflection Coating for Laser Optics

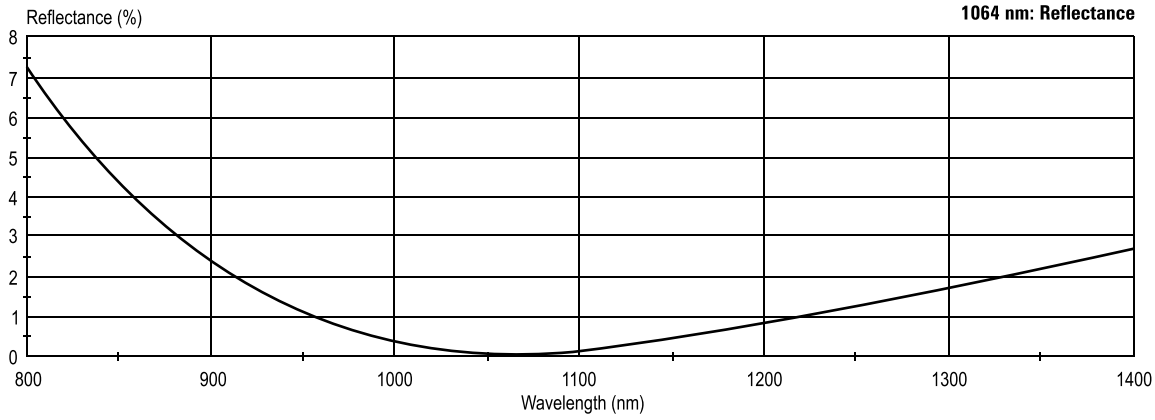
Antireflection coating on optical components for laser wavelengths is designed with suitable dielectric multilayer to have a low absorption, minimum surface reflection loss with high damage threshold. The designed layers are electron beam deposited under the presence of high energetic ion beam to increase the packing density and stoichiometry and monitored through optical thickness monitor to ensure the close match of the design to achieve the desired transmittance with batch by batch consistency. This advanced deposition technology offers the high resistance to laser damage, making them suitable for high-energy laser usage with minimum transmission loss.

Laser lines:
AR coatings at 532 nm, 633 nm, and 1064 nm

Specification:

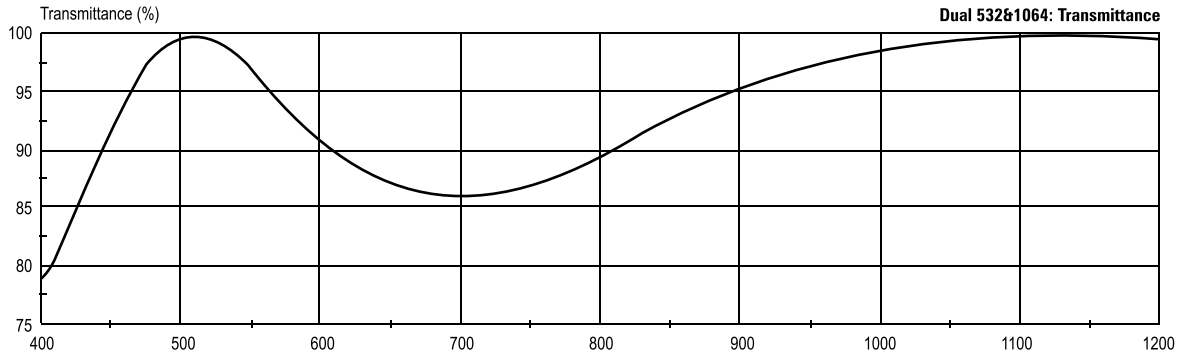
Substrate material	: BK7, UVFS, SF15, etc.
Coating technology	: Electric beam deposition
Coating type	: Multi layer dielectric
Coating performance	: R < 0.3 %
Clear aperture	: > 85 % of the specified aperture
Adhesion and durability	: As per MIL-C-675C
Damage threshold	: 1 GW/ cm2 (at 1064 nm)

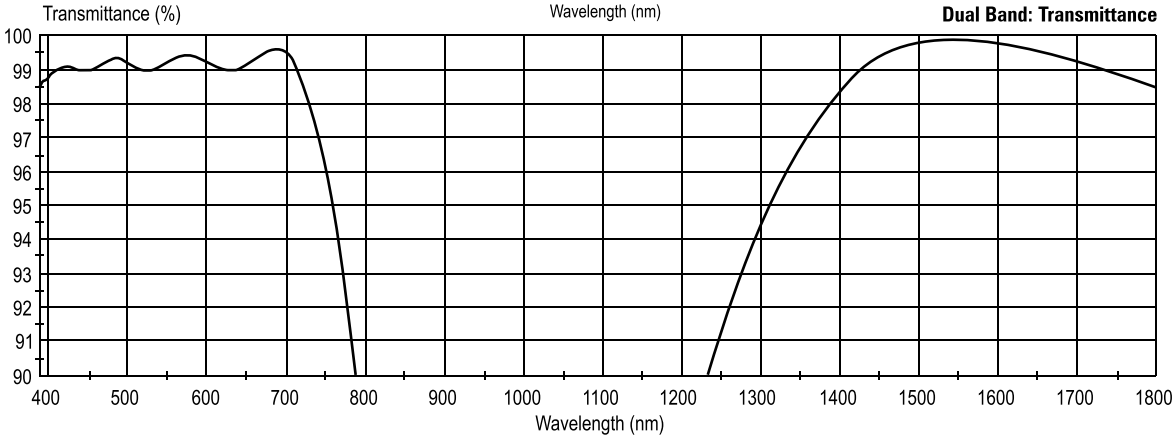
Applications:
These low-absorption coatings are ideal for increasing the transmittance of lenses and for reducing second-surface reflections and hence effectively utilizing the laser energy.
Note: Other custom made coatings can be done.



Dual Band Antireflection Coatings

Bands: 532 nm and 1064 nm: 400-700 nm and 1064 nm: 400-700 nm and 1550 nm.





Specification:

Substrate material	: BK7, SF-4 etc.
Coating technology	: Electric beam deposition
Coating type	: Multi layer dielectric
Coating performance	: R < 1 % (532 nm) and < 0.5 % (1064 nm) < 1 % (400 – 700 nm) and < 0.5 % (1064 nm) < 1 % (400 – 700 nm) and < 0.5 % (1550 nm)
Clear aperture	: > 85 % of the specified aperture
Adhesion and durability	: As per MIL-C-675C

Applications:

- Optical systems working in visible and NIR region like night vision goggles
- Laser applications like laser range finder.

Note: Other custom made coatings can be done.

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