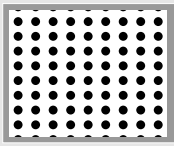
BEAM SPLITTERS

PLATE BEAM SPLITTERS

CUBE BEAM SPLITTERS



POLKA DOT BEAM SPLITTERS

PLATE BEAM SPLITTERS

An optical element which divides the beam in to two different beams in different directions is a beam splitter. Configuration wise they are broadly divided to two types as cube beam splitter and plate beam slitters.

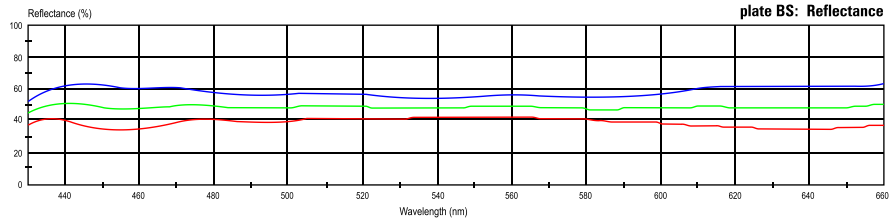
Beam Divider

Plate beam splitters are polished flat and coated glass substrates which are in general used at 45 degree in an optical system. Highly polished surface is coated with the beam splitter coating, while the other commercially polished side is coated with the broadband anti-reflection coating to minimize the spurious reflection from the other surface.

Coating Specs:

T/R ratios: 90-10(± 2 %); 80-20(± 3 %); 70-30 (± 3%); 60-40(± 4%); 50-50(± 5%); 40-60(± 4%); 30-70(± 3%); 20-80(± 3%); 10-90(± 2%)

Substrate Material	: BK7
Coating technology	: Electric beam deposition
Coating type	: Multi layer dielectric
Wavelength range	: 400-750 nm
Coating performance	: T/R as per the requirement
Angle of incidence	: 45 degree
Antireflection coating	: Broadband (R<1%)
Clear aperture	: > 85 % of the specified aperture
Adhesion and durability	: As per MIL-C-675C



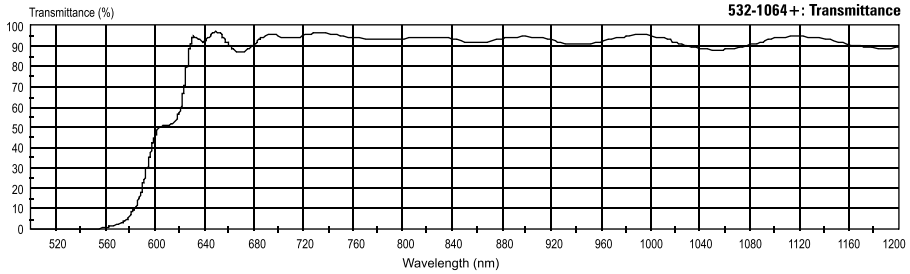
Applications:

- For beam splitting applications in continuous wave& pulsed laser applications and optical systems
- Sensor technology

Dichroic Plate Beam Splitters

Harmonic Separators:

Nd: YAG laser can have second and third harmonics. These three harmonics are useful in scientific community. When an optical system use these harmonics, they need to combine/separate at the detector plane. A dichroic beamsplitter coating can be used to serve the purpose.

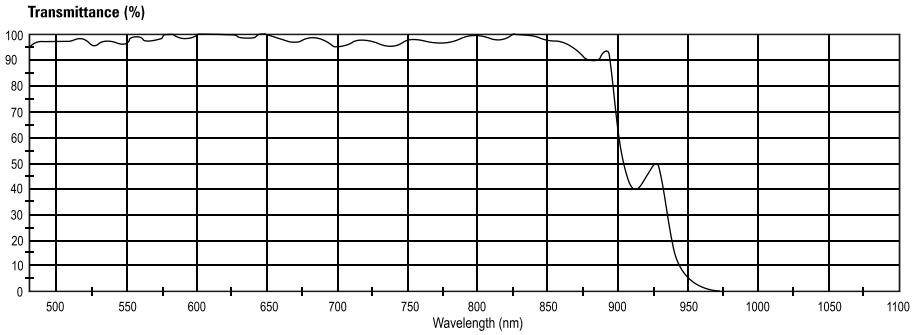


Coating Specs:

Harmonic separator pairs:

λr/λt : 532 / 1064 nm and 1064 / 532 nm

Substrate Material	: BK7
Coating technology	: Electric beam deposition
Coating type	: Multi layer dielectric
Wavelength range	: 400-1100 nm
Coating performance	: R @ λr: > 99% and T @ λt: > 90 % for mean polarization
Angle of incidence	: 45 degree
Antireflection coating	: R < 0.3 % optimized for transmitted wavelength
Clear aperture	: > 85 % of the specified aperture
Adhesion and durability	: As per MIL-C-675C



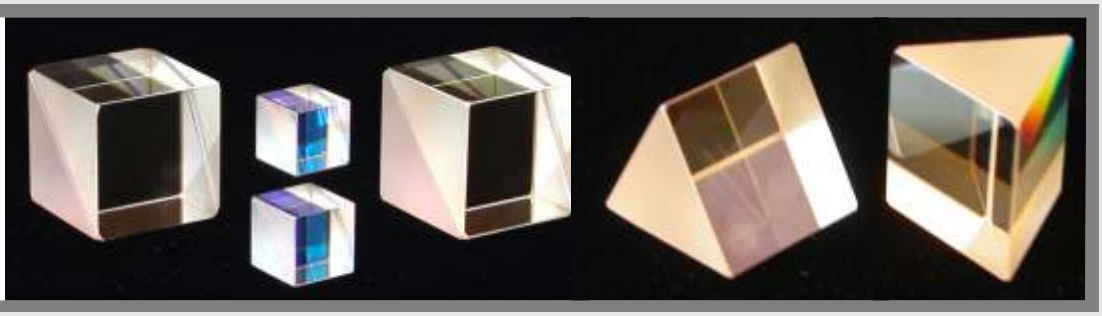
Applications:

Nd: YAG Harmonic separation and combination and as an edge filter at oblique angle of incidence.

Note: Other custom made coatings can be done.

CUBE BEAM SPLITTERS

A cube beam splitter consists of two optically cemented right angle triangular prisms. The four outer surfaces are antireflection coated.

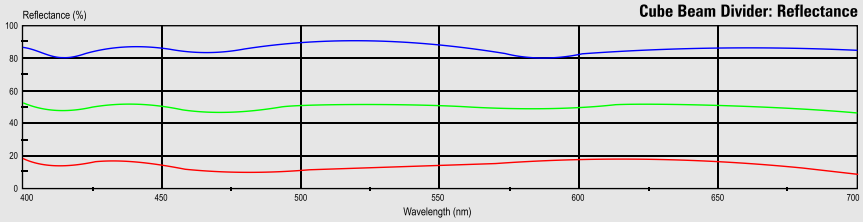


Cube Beam Divider

Coating Specs:

T/R ratios: 90-10(± 2 %) ; 80-20(± 3 %) ;70-30 (± 3%) ; 60-40(± 4%) ; 50-50(± 5%); 40-60(± 4%); 30-70(± 3%); 20-80(± 3%); 10-90(± 2%)

Substrate Material	: BK7
Coating technology	: Electric beam deposition
Coating type	: Multi layer dielectric
Wavelength range	: 400-750 nm
Coating performance	: T/R as per the requirement
Angle of incidence	: 45 degree
Antireflection coating	: Broadband (R<1%)
Clear aperture	: > 85 % of the specified aperture
Adhesion and durability	: As per MIL-C-675C



Applications: • For beam splitting in optical systems like surgical microscopes etc. • In night vision binoculars • Sensor technology

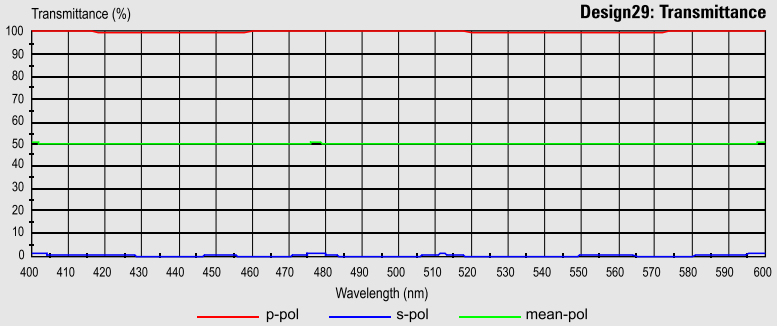
Note: Other custom made coatings can be done.

Broadband Polarizing Cube Beam Splitter

A cube polarizer consists of a pair of cemented precision right-angle prisms to form a cube with low output beam distortion. The hypotenuse of one of the prisms is coated with a multilayer dielectric polarizing beamsplitter coating optimized for a specified wavelength range. The four outer faces are antireflection coated with a multilayer dielectric coating to minimize surface reflection losses. An unpolarized beam is split into two orthogonal, linearly polarized components. P-polarized light is transmitted, while s-polarized light is reflected, both with negligible absorption. The extinction ratio is better than 500:1 and is used as a broadband polarizer in a standard cube configuration.

Coating Specs:

Substrate Material	: BK7, SF2, SF15 etc.
Coating technology	: Electric beam deposition
Coating type	: Multi layer polarizing dielectric
Wavelength range	: 500-600 nm, 600-800 nm also as per custom requirement
Coating performance	: Tp/Ts >= 500:1 , Tp > 95% and Rs> 99.8 %
Angle of incidence	: 45 degree
Antireflection coating	: Broadband (R<1%)
Clear aperture	: > 85 % of the specified aperture
Adhesion and durability	: As per MIL-C-675C



Applications: • Projection systems and signal processing • Color separation and recombination

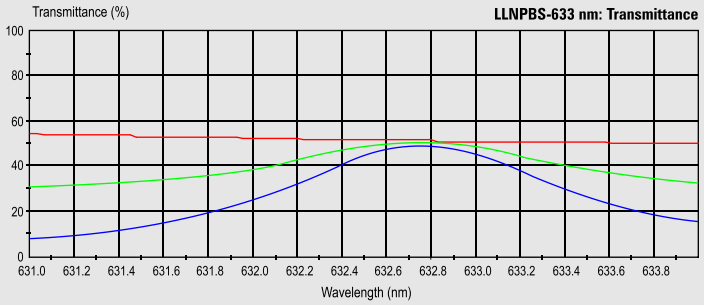
Note: Other custom made coatings can be done.

Laser Line Non-Polarizing Beam Splitter

Laser line non-polarizing cube beamsplitters are insensitive to the polarization of an incoming beam. The hypotenuse of one of the prisms is coated with a multilayer all-dielectric non-polarizing beamsplitter coating optimized for specific laser lines. They provide true 50/50 beamsplitting without altering the beam polarization. Incoming beams are both transmitted and reflected 50%, with the s and p-polarized components matched to within 3%. The four faces are antireflection coated with a multilayer dielectric coating to minimize surface reflection losses at the laser lines.

Coating Specs:

Laser lines	: 532 nm, 632.8 nm and 1064 nm
Substrate Material	: BK7
Coating technology	: Electric beam deposition
Coating type	: Multi layer non-polarizing dielectric
Coating performance	: Transmission: 50 ±5%, independent of polarization
Reflection	: 50 ±5%, independent of polarization
Polarization	: S- and P-polarization components matched to within 3%, |Ts - Tp| ⩽5%, |Rs - Rp| ⩽5%
Angle of incidence	: 45 degree
Antireflection coating	: R < 0.3 % matched at the required laser line
Clear aperture	: > 85 % of the specified aperture
Adhesion and durability	: As per MIL-C-675C



Application: • Laser energy splitting • Laser range finders

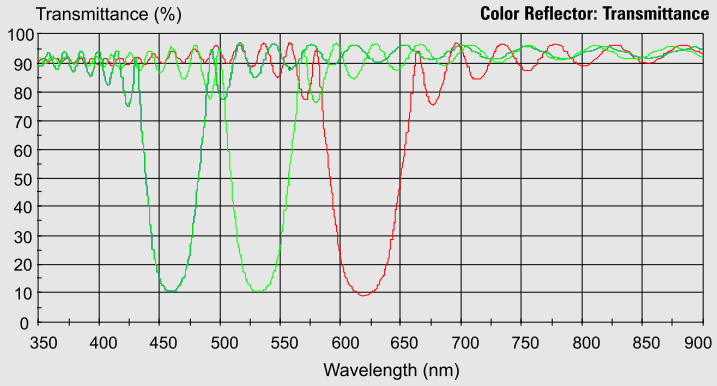
Note: Other custom made coatings can be done.

Non-Polarizing dichroic beam splitter

Dichroic coatings will transmit some part of the spectrum while reflecting the other part. In a cube beam splitter it is hard to achieve the non-polarization condition especially when the angle of incidence is steeper. This beam splitter coating will transmit the visible spectrum except the specified color (Red or Blue or green). All the other four sides of the cube beam splitter are coated with broadband antireflection coating.

Coating Specs:

Substrate Material	: BK7
Coating technology	: Electric beam deposition
Coating type	: Multi layer non-polarizing dielectric
Wavelength range	: 400-850 nm
Angle of incidence	: 45 degree
Antireflection coating	: Broadband (R<1%)
Clear aperture	: > 85 % of the specified aperture
Adhesion and durability	: As per MIL-C-675C



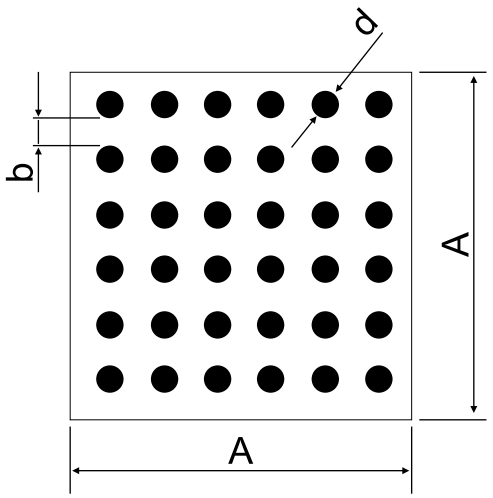
Applications:

- Color separation and combination
- Projection systems and aiming sights

Note: Other custom made coatings can be done.

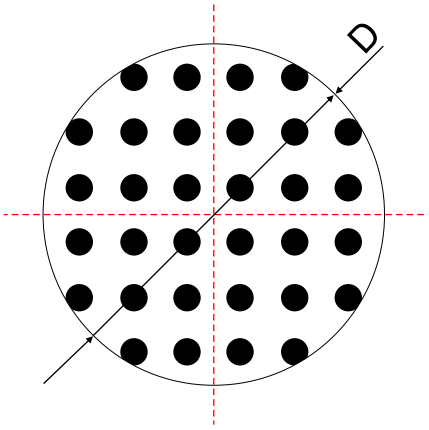
POLKA DOT BEAM SPLITTERS

Polka dot beam splitter is vacuum deposited aluminium coating with protective dielectric layer on ultraviolet grade fused silica substrate. Coating is deposited in the circular/ square type patterns of preferred dimension and spacing depending on the input beam size. When this beam splitter is placed in the input beam path, it divides the beam energy into equal halves in transmission and reflection. This coating bears the advantage of being insensitive to the angle of incidence and color neutral.



Coating Specs:

Substrate Material	: UVFS
Coating technology	: Electric beam deposition
Coating type	: Metallic aluminium + protective overcoat
Wavelength range	: 190-1100 nm
Coating performance	: Transmission: 50 ±5% Reflection: 50 ±5%
Angle of incidence	: 0-45 degree
Clear aperture	: > 85 % of the specified aperture
Adhesion and durability	: As per MIL-C-675C
Required dimensions	



Applications:

As equal energy dividers in spectrophotometers to sample and reference beam

Note:
A, b, d and D (in mm) should be specified.
Square type dot patterns also can be done.

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