Beamsplitters

TOWER OPTICAL CORPORATION

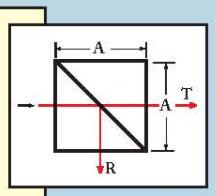
Beamsplitters are used to split or combine beams of light. Tower Optical provides some standard beamsplitters, but most are custom per drawings submitted by a customer. Some standard cubes and plate beamsplitters are shown below.

Plates are used for most laser applications as they exhibit low absorption. Cubes are a convenient, protected form for low power applications. The performance of the beamsplitters is a function of the beamsplitter coating.

Polarization Beamsplitter Cubes

These beamsplitters are based upon using two complementary prisms. The output beam, which is parallel to the input beam, is called the ***p-polarized*** beam, while the orthogonal output beam is defined as ***s-polarized***.

Specifications



Material: BK-7 grade A optical glass
Dimension Range: 3.2mm to 50.8mm
Dimensional Tolerance: ± 0.2mm
Angular Tolerance: ± 3 arc minutes
Surface Quality/Scratch & Dig: 60/40
Beam Deviation: 3 arc minutes
Extinction ratio: >100:1
Principal transmittance: T_p>95% and T_s<1%
Principal reflectance: R_s>99% and R_p<5%
Wavelength range: 226nm to 2300nm
Polarization beam splitter coating:
On hypotenuse
AR coating: R<0.25% per face for 4 faces

Pricing and ordering info

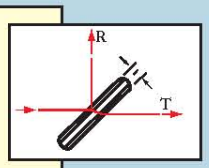
Model	Narrow Broad	Size mm	Price $
BSPN1-5-X	N	5 x 5 x5	132
BSPN1-10-X	N	10 x 10 x 10	132
BSPN1-15-X	N	15 x 15 x 15	165
BSPN1-20-X	N	20 x 20 x 20	187
BSPB1-10-Y	B	10 x 10 x 10	143
BSPB1-15-Y	B	15 x 15 x 15	170
BSPB1-20-Y	B	20 x 20 x 20	181

X = Narrow Band Wavelengths: 488, 514, 633, 780, 850, 1064, 1300, 1550 nm
Y = Broad Band Ranges(nm): 1=450-680, 2=650-850, 3=900-1200, 4=1200-1550

Beamsplitter Plates

Beam splitter plates are primarily used to split or re-combine a beam of light, especially in high power lasers. When using beam splitter plates the two partial beams travel different optical paths. The optical paths depend on the incident angle and the thickness of the plates. The beam can be shifted.

Specifications



Material: BK-7 grade A optical glass
DiameterRange: 10mm to 50.8mm
Dimensional Tolerance: ± 0.2mm
Thickness Tolerance: ± 0.2mm
Flatness: λ/4@632.8nm per 25mm
Surface Quality/Scratch & Dig: 60/40
Parallelism: 1 arc minute
T/R: 50/50 ± 5% for random polarization
$T=(T_s + T_p)$, $R=(R_s + R_p)/2$
Coatings: surface 1&2: (incidence angle: 45°)
S1: Single wavelength partial reflectance
S2: "V" AR-coatings

Model	Narrow Broad	Size mm	Shape RND SQ	Price $
BSNN1-12.7S-X	N	12.7 x 12.7 x 3	SQ	49
BSNN1-25.4S-X	N	25.4 x 25.4 x 3	SQ	68
BSNN1-25.4R-X	N	25.4 x 3	RND	68
BSNN1-50.8S-X	N	50.8 x 50.8 x 3	SQ	112
BSNB1-12.7S-Y	B	12.7 x 12.7 x 3	SQ	58
BSNB1-25.4S-Y	B	25.4 x 25.4 x 3	SQ	72
BSNB1-25.4R-Y	B	25.4 x 3	RND	72
BSNB1-50.8S-Y	B	50.8 x 50.8 x 3	SQ	116

The Beamsplitter specifications are general - We are happy to quote other specifications.