

# Optical Beamsplitters

## ● Optical Beamsplitters

Beamsplitters are used to split or combine beam of light, The most common types of beamsplitters are plates and cubes. Plates are used for most laser application as they exhibit low absorption. Cubes are a convenient, protected form for low power applications. The performance of beamsplitters are mainly depended on the coating specifications. In selecting beamsplitters, the forms, coating, transmission and damage threshold should be considered.

### Beamsplitter Plates

Beamsplitter Plates can be used with high power laser. When using beamsplitter plates, it is important to bear in mind that the two partial beams travel different optical paths. And the optical paths depend on the incident angle and the thickness of plates.

#### Narrowband Beamsplitter Plates

Specifications:

Material: BK7 grade A optical glass

Dimension Tolerance: +/-0.2mm

Thickness Tolerance: +/-0.2mm

Clear Aperture: >85% of diameter

Parallelism: <1 arc minute

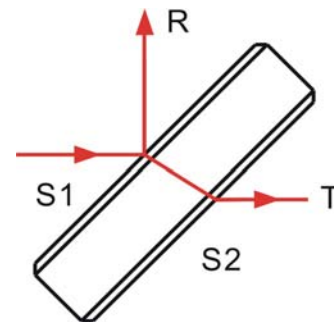
Surface Quality: 60-40 scratch and dig

Flatness:  $\lambda/4$  per 25mm @632.8nm

T/R: 50/50±5%, for natural light,  $T=(T_s+T_p)/2$ ,  $R=(R_s+R_p)/2$

Coatings: incidence angle 45deg,

S1: Single wavelength partial reflectance, S2: "V" AR-coatings



#### Broadband Beamsplitter Plates

Specifications:

Material: BK7 grade A optical glass

Dimension Tolerance: +/-0.2mm

Thickness Tolerance: +/-0.2mm

Clear Aperture: >85% of diameter

Parallelism: <1 arc minute

Surface Quality: 60-40 scratch and dig

Flatness:  $\lambda/4$  per 25mm @632.8nm

T/R: 50/50±5%, for natural light,  $T=(T_s+T_p)/2$ ,  $R=(R_s+R_p)/2$

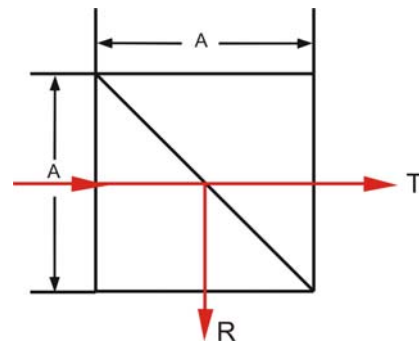
Coatings: incidence angle 45deg,

S1: Broadband partial reflectance, S2: BBAR-coatings

# Optical Beamsplitters

## ● Beamsplitter Cube

Beamsplitter Cube is a more sophisticated type consisting of two right-angle prisms cemented together at their hypotenuse faces. The cemented face of one prism is coated. Before cementing, with a metallic or dielectric layer having the desired reflecting properties, both in the percentage of reflection and the desired color. The absorption loss to the coating is minimal and transmission and reflection approach 50%.



Specifications:

Material: BK7 grade A optical glass

Dimension Tolerance: +/-0.2mm

Surface Quality: 60-40 scratch and dig

Flatness:  $\lambda/4$  per 25mm @632.8nm

Angle Tolerance: <3 arc minutes

T/R: 50/50±5%, for natural light,  $T=(T_s+T_p)/2$ ,  $R=(R_s+R_p)/2$

Coatings: Partial reflectance: on hypotenuse face ;

AR-coatings: on all input and output faces.