

Function of a plate-type beam splitter



Article Overview

A plate-type beam splitter works by partially reflecting and partially transmitting an incident light beam through a coated flat glass plate, typically positioned at a 45° angle.

Structure and Coatings

A plate-type beam splitter consists of a thin, flat glass substrate with specialized coatings. The front surface is coated with a dielectric beam-splitting film, which divides the incoming light into reflected and transmitted components. The back surface usually has an anti-reflection (AR) coating to minimize unwanted Fresnel reflections and maximize optical efficiency. This design ensures that the transmitted and reflected beams maintain high intensity and minimal distortion.

Working Mechanism

When light strikes the plate at a 45° angle of incidence, part of the light is reflected off the coated surface, while the remainder is transmitted through the plate. The splitting ratio (e.g., 50:50 for non-polarizing plates) depends on the coating design and can be tailored for specific applications. The 45° orientation is preferred because it provides near-equal power division, reduces ghost reflections, and allows for compact optical layouts in systems like interferometers and laser setups.

Polarization and Light Control

Plate-type beam splitters can be non-polarizing or polarizing. Non-polarizing plates...

Article Content

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Beam splitter

A beam splitter or beamsplitter is an optical device that splits a beam of light into a transmitted and a

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Read on to start narrowing your search by beamsplitter type: plate, cube, or integrated construction for variable attenuation. NOTE:

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Beam Splitter

The beam splitter may be silver or dielectric coated glass plate, glass cube with coating in the diagonal plane, two parallel plane

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Beamsplitters Selection Guide

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Beamsplitter plate

Plate beamsplitter is an optical device that divides an incident beam of light into two separate paths. This division is achieved through

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What is a Beam Splitter?

A beam splitter or power splitter is an optical device that can split an incident light beam e.g. a laser beam into two or

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