

Equipment using a beam splitter



Summary of Content

A beam splitter is an optical device that divides a single light beam into two separate beams, one transmitted and one reflected.

Definition and Function

A beam splitter is an optical instrument designed to split an incoming light beam into two or more separate beams. It operates passively, using a specialized surface that partially reflects and partially transmits light, allowing a single light source to serve multiple purposes within an optical system . The split ratio, which determines how much light is reflected versus transmitted, can be precisely controlled by coatings applied to the device, such as metallic films (e.g., aluminum) or multilayer dielectric coatings .

Types of Beam Splitters

- **Cube Beam Splitters:** Constructed from two right-angle prisms cemented together, often with a coated hypotenuse surface. They are durable and commonly used in interferometers and laser systems .
- **Plate Beam Splitters:** Made from a thin, flat glass plate with a reflective coating on one surface and often an anti-reflection coating on the other. Typically designed for a 45° angle of incidence .
- **Polarizing Beam Splitters:** Use birefringent materials to separate light into beams with orthogonal polarization states, such as Wollaston prisms .
- **Variable Beam Splitters:** Allow continuous adjustment of the split ratio, often using a rotatable half-wave plate combined with a polarizing splitter or a gradient-coated rotating disk .

Article Content

Beam splitter

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

What is Beam splitter? Meaning, Examples, Use Cases, and How to

A beam splitter is an optical device that divides an incoming light beam into two or more separate beams, typically by

Understanding Beamsplitters: Types, Principles, and Applications

Beamsplitters are key instruments deployed across various fields, such as interferometry and optics. They are found in

What are Beamsplitters?

Options range from laser beam combiners designed for specific laser wavelengths to broadband hot and cold mirrors for splitting

Beam Splitters – optical power splitter, beamsplitter, thin-film ...

For example, beam splitters are required for various interferometers, autocorrelators, photo cameras, projectors and laser systems.

Exploring Beam Splitters: Types and Applications

Explore different types of beam splitters and their applications. Learn how beam splitters work and find the right one for your needs.

How does a beam splitter work? Common types and use cases

In these devices, beam splitters allow for the simultaneous measurement or analysis of multiple optical paths,

Beam Splitters, Separators & Combiners | Other Items

Beam splitters, separators and combiners are identical components that are arranged in the beam path depending on the

Beam Splitters — Abridged Guide

Quick-reference guide for beam splitters — key equations, type comparison tables, Fresnel reflectance, polarizing designs, and a

All You Need to Know About Beam Splitters

Beam splitters are versatile and indispensable tools used across a wide range of fields, including media, holography,

Contact Us

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