Which type of beam splitter should I buy

Overview

What Are the Best Beam Splitters for Your Project?

When choosing a beam splitter for a specific project, it is important to evaluate its intended applicati.

Key Takeaways

The choice of a beam splitter depends on your application, light polarization, wavelength, and desired splitting ratio, with common options including cube, plate, polarizing, non-polarizing, and dichroic types.

Types of Beam Splitters

Cube Beam Splitters: Constructed from two right-angle prisms cemented together, cube splitters provide a fixed splitting ratio and are ideal for minimizing ghost images. They are robust and commonly used in interferometers and laser systems. Plate Beam Splitters: Thin, flat glass plates coated on one surface, often used at a 45° angle of incidence.

They are lightweight, cost-effective, and suitable for space-constrained setups. However, they can produce ghost reflections, which may require anti-reflective coatings or compensation plates. Polarizing Beam Splitters: These split light into orthogonal polarization states, reflecting S-polarized light and transmitting P-polarized light.

They are essential when maintaining polarization is critical, such as in laser experiments or optical communication.

© 2026 CJC FIBRE CONSULTANTS - All rights reserved

Non-

Polarizing Beam Splitters: Designed to split unpolarized light at a specific reflection/transmission ratio without significantly affecting polarization. Useful for general optical setups where polarization is not a concern. Dichroic Beam Splitters: Split light based on wavelength, with shortpass, longpass, or multiband options.

Ideal for fluorescence applications or combining/separating multiple laser wavelengths. Specialty Types: Pellicle beam splitters, Brewster windows, and wedged plates offer unique advantages such as minimal absorption, high damage thresholds, or multiple beam outputs.

Selection Considerations

Application Requirements: Interferometry may favor cube splitters for minimal ghosting, while fluorescence imaging may require dichroic splitters. Polarization Sensitivity: Use polarizing splitters for polarization control; non-polarizing splitters for general light splitting. Wavelength Range: Ensure the splitter's coating or material is compatible with your light source (UV, visible, IR).

Splitting Ratio: Choose a splitter with the desired reflection/transmission ratio, or a variable splitter if adjustable ratios are needed. Physical Constraints: Plate splitters are lighter and more compact, while cubes are more robust and easier to align.

Practical Advice

For high-power lasers, consider damage thresholds and avoid cemented prisms in UV applications. To reduce ghost reflections in plate splitters, use anti-reflective coatings or a compensation plate. When precise polarization control is required, Wollaston prisms or Brewster windows may be preferred.

By evaluating these factors, you can select a beam splitter that balances optical performance, durability, and application-specific requirements.

Article Content

What Are the Best Beam Splitters for Your Project?

When choosing a beam splitter for a specific project, it is important to evaluate its intended application, performance requirements, and environmental factors.

Beam Splitter Types Compared

In-depth comparison of beam splitter types: cube, plate, pellicle, and dichroic. Understand ghost reflections, damage thresholds, and which type fits your optical setup.

Beam Splitters – optical power splitter, beamsplitter, thin

© 2026 CJC FIBRE CONSULTANTS - All rights reserved

The most common types are plate beam splitters and cube beam splitters. Plate beam splitters use a partially reflective coating on a transparent substrate, while

The Buyer''s Guide to Beam Splitters | Blue Ridge Optics

Find the right beam splitters for your next project. Explore various beam splitter types, properties, and applications

beamsplitters selection guide

The 2 forms of beamsplitters are cube and plate type. Good fit for large beam size applications at a reasonable price. Advantages are: minimal back reflection, compact light-path as compared to cube

Thorlabs · Optical Beamsplitters

Our cube beamsplitters are available in polarizing or non-polarizing models. The pellicle and cube beamsplitters can be purchased premounted in cubes that are compatible with our lens tube and

How to Select the Perfect Beam Splitter for Your Optical Setup

Cube beam splitters offer compactness, simplified alignment, and no beam deviation, making them ideal for systems with limited space and requiring precise beam alignment.

Selecting the Right Beamsplitter

Today I''m going to talk about the different types of beamsplitters we offer and provide you with information that will help you choose what beamsplitter would work best for your application.

Beam Splitter Selection Guide

Circular beamsplitters, plate beamsplitters and cube beamsplitters can be purchased for polarizing or non polarizing beamsplitting applications. Newport offers both broadband and laser line cube

What is a Beam Splitter: Types And Applications

A beam splitter is a device used to separate or combine light. It is widely used in guiding light in optical systems, enhancing imaging and

Beam Splitter

A beam splitter is defined as an optical device that effects a linear transformation of fields presented at two input ports, producing output beams that are related to the input fields in a characteristic manner

Selecting the Right Beamsplitter

© 2026 CJC FIBRE CONSULTANTS - All rights reserved

Selecting the Right Beamsplitter Beamsplitters are optical components that split light into two directions, and are available in many different designs. Are you interested in learning about the benefits and differences of the multiple types of beamsplitters offered by Edmund Optics, including plate, cube, pellicle, and

How Does a Beam Splitter Work? Types, Principles & Applications

Learn how beam splitters work, compare cube and plate designs, and explore applications in lasers, microscopy, and interferometry.

The Buyer''s Guide to Beam Splitters | Blue Ridge Optics

Beam splitters are the unsung heroes of the optics world. These optical components divide incident light into two distinct beams: one reflected and one transmitted. This precise ability to

Optical Beamsplitters | Beamsplitter Selection | Edmund

Non-Polarizing Beamsplitters, ideal for laser beam manipulation, split light by overall intensity. Polarizing Beamsplitters, often used in photonics instrumentation, split

Understanding Beamsplitters: Types, Principles, and Applications

This article explores the fundamental principles and diverse applications of beamsplitters, detailing their different types and uses in fields such as optics and interferometry.

Beam Splitters: Explained

The diffractive beam splitter allows the creation of any type of spot arrays (1D, 2D, or irregular) while maintaining high efficiency and uniform distribution of energy in the spots. Sample of

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 sometimes more beams, which may or may not have the same optical

© 2026 CJC FIBRE CONSULTANTS - All rights reserved

Contact Us

Continue your research online:

Website: https://cjcconsultants.co.za
Technical inquiry: https://cjcconsultants.co.za/contact.html

This document is for preliminary research. Verify specifications against current standards, product documentation and project requirements.

© 2026 CJC FIBRE CONSULTANTS - All rights reserved