COETZER OPTICAL SYSTEMS (Pty) Ltd

What s used at the top of the beam splitter

Overview

Plate beamsplitters consist of a thin plate of optical crown glass with a different type of coating deposited on each side.

Key Takeaways

The top of a beam splitter typically features either a coated optical surface or the exposed face of a prism, depending on its type.Cube Beam Splitters

For cube beam splitters, the top surface is usually the hypotenuse face of one of the two triangular prisms, which may be coated with a partially reflective material or left uncoated depending on the design . This coating, often a thin layer of metal like aluminum or a dielectric thin film, determines how much light is reflected versus transmitted. The two prisms are glued together at their base, and the top surface is where the incident light enters or exits, sometimes marked with a reference to indicate the coated side .

Plate Beam Splitters

For plate beam splitters, the top is a flat glass or plastic surface that may have a thin reflective coating on the first surface to split the incoming light . The opposite surface often has an anti-reflection coating to minimize unwanted reflections. The top surface is typically oriented at a 45° angle to the incoming beam to achieve the desired reflection/transmission ratio.

Functional Considerations

The top surface is critical for the beam splitter's function. In cube designs, light entering the top interacts with the internal coated interface between the prisms, splitting the beam into transmitted and reflected components. In plate designs, the top coating directly reflects part of the incident light while allowing the remainder to pass through. Some specialized beam splitters, like polarizing types, have birefringent materials on the top to separate light by polarization . In summary, the top of a beam splitter is either a coated optical surface or the exposed prism face, designed to control the reflection and transmission of light according to the splitter's intended function.

Article Content

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Conclusion Current optical technology heavily utilized optical beam splitters because they deliver exact light control in

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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