

Machines for making beam splitters



AI Overview

Producing high-quality beam splitters requires precision CNC machines, optical polishing systems, coating equipment, and advanced metrology tools to ensure optical performance.

Core Production Machinery

1. Precision CNC Machines Beam splitter manufacturing begins with shaping optical materials such as glass, quartz, or calcium fluoride. High-precision CNC machine tools are used to cut, grind, and mill prisms or plates to exact geometries and angles, often within micrometer tolerances. These machines ensure the correct prism angles and surface flatness, which are critical for optical performance . 2. Polishing Equipment After initial shaping, surfaces are polished to achieve optical-grade smoothness. Advanced polishing systems, including fluid jet polishing (FJP) technology, allow adjustment of surface flatness to within a few nanometers. This step is essential for minimizing scattering and maintaining beam coherence . 3. Coating Systems To enhance transmittance and reduce reflection, beam splitters are coated with multiple layers of optical films. Vacuum deposition or sputtering machines are used to apply dielectric or metallic coatings, tailored to specific wavelength ranges and polarization requirements. Coating uniformity directly affects the splitter's efficiency and durability . 4. Metrology and Testing Equipment Quality control is critical. Interferometers, spectrometers, and high-precision optical measurement devices are used to verify surface flatness, angle accuracy, and optical performance. These tools ensure that each beam splitter meets design specifications and wavelength-dependent performance standards .

Optional Specialized Equipment

Article Content

Optical Beamsplitters | Beamsplitter Selection | Edmund Optics

Beamsplitters are optical components used to split input light into two separate parts. Beamsplitters are common components in

Optical Beamsplitters | Beamsplitter Selection | Edmund Optics

Dichroic Beamsplitters, which split light by wavelength, are often used as laser beam combiners or as broadband hot or cold mirrors.

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

Beam splitters are devices for splitting a laser beam into two or more beams. There are different types, including polarizing and non

OptoSigma

There are two main types of beamsplitters, plate beamsplitter and cube beamsplitter and each has their

42 Beamsplitter Manufacturers in 2026

The company produces various laser optical components including polarizers, beam splitters, mirrors, filters, and lenses. It also

Optical Beamsplitters Explained | Cube & Polarizing Types

A beam splitter, or beamsplitter, is an optical component used to divide incident light into two separate beams based on wavelength,

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.

Beam Splitters: Types and Applications

Beam splitters find their application in a diverse array of fields, from teleprompters to robotics, impacting various technologies we rely

CNC Beam Processing Machines for Steel Fabrication

CNC beam processing machines for drilling, cutting and fabrication of structural steel beams. Discover

What are Beamsplitters?

Optical components that create two beams by splitting incident light are beamsplitters. Read more about the different types of

Understanding Beamsplitters: Types, Principles, and Applications

This article explores the fundamental principles and diverse applications of beamsplitters, detailing their different types

Thorlabs · Optical Beamsplitters

Thorlabs offers a wide range of optical beamsplitters. Our plate beamsplitters have a coated front surface

Introduction To Splitters | Teledyne Vision Solutions

Introduction To Splitters Introduction Early microscopes were essentially a tube through which light travels

How Beamsplitters Work: Principles and Applications

The precise light division enabled by beamsplitters makes them integral components across advanced scientific and

How Beamsplitters Work: Types, Mechanisms, and Applications

This article explains the working principles of beamsplitters, detailing how they divide a beam of light into two separate

Beam Splitters

When working with lasers, it is often necessary to split a laser beam into two or more defined partial beams. There are a variety of

Beam splitter

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

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

Understanding Beam Splitters Beam splitters are essential optical components used to divide a beam of light into two

Exploring Beam Splitters: Types and Applications

What Is a Beam Splitter? Working Principles, Types, and Applications Beam splitters play a critical role in modern optical technology,

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

What Are Optical Beam Splitters?

What Are Optical Beam Splitters? Key Takeaways Beam splitters, essential for applications such as teleprompters and holograms,

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