Precision Optics from A to Z

The Optics Store at www.dmphotonics.com/optics

Del Mar Photonics manufactures a wide variety of standard and custom precision optical components. This flier shows some examples of our capabilities in terms of materials and types of optical components. Please visit our website or contact us at the address below to discuss your requirements for OEM optics manufacturing.

Axicon

An axicon lens, also known as a conical lens or rotationally symmetric prism, is widely used in different scientific research and application. An axicon lens can be used to convert a parallel laser beam into a ring, to create a non diffractive Bessel beam, or to focus a parallel beam into long focus depth.

BaF_2 optics

Barium fluoride crystals are transparent from UV (~0.14 μm) to middle IR (~14 μm) spectral regions and are widely used in optics for thermal imaging and astronomy.

CaF_2 optics

Calcium fluoride may be used as optical material in the VIS and IR spectral regions, with transmission above 90% between 0.25 and 7 μm. Typical applications include imaging, thermal imaging, astronomy, microlithography, and lasers.

Dove prisms

A Dove prism is used to invert an image. Dove prisms are shaped from a truncated right-angle prism. A light entering one of the sloped faces of the prism undergoes total internal reflection from the inside of the longest (bottom) face and emerges from the opposite sloped face

Etalon

The solid state Fabry-Perot etalon (Fabry-Perot interferometer) is perhaps the simplest of all etalons, and consists of a single plate with polished plane parallel ends serving as the reflective medium. Germanium etalons are widely used for IR spectroscopicy and other applications.

Fused Silica optics

Fused Silica is transparent in the UV, VIS, and IR spectral ranges. This non-crystalline, colorless, silica glass is resistant to scratching and thermal shock.

Ge optics

Germanium has the highest index of refraction of any commonly used IR-transmitting materials. The high thermal conductivity of Ge makes it a very useful material for high power laser aplications.

High Power Variable Attenuator

High-Power Variable Attenuators are used to control the power of high energy lasers. Diffractive variable attenuators control the power of laser radiation using diffraction gratings. Diffractive attenuators can be designed for wavelengths from the deep UV to IR and for laser powers up to 250W/cm^2 in CW and 1000 mJ/cm^2 in 10 ns pulses.

Infrared optical materials

A wide range of optical materials that have low absorption in the spectral region from 0.8 to 30 μm. These are glasses, fused silica and quartz crystals, fluorides, selenides, sulfides, Ge, thallium bromides and iodides and other materials. Typical applications include manufacturing of optical components (windows, prisms, lenses, wedges, optical filters) for devices and systems working with IR radiation.

Join us at The Optics Store

We invite you to join us at the on-line Optics Store at www.femtosecondsystems.com/optics.
The online store displays the full product line with descriptions and prices. We also offer OEM agreements to meet your manufacturing needs. Please contact us at optics@dmphotonics.com or 858-876-3133 to discuss what we can do for you.

KBr optics

Potassium bromide is transparent in UV, VIS, and far IR regions from 0.21 to 28 μm. It is commonly used for infrared transmission windows in gas and liquid sample cells that are used with infrared and FTIR spectrophotometers, and for beam splitters for spectrophotometers.

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LiF optics

Lithium fluoride is produced in two grades, UV and IR, and is transparent from 0.12 µm to 8.5 µm. UV grade LiF is an unsurpassed optical material, with transparency in deep UV region up to 0.1 µm. IR grade LiF works well up to 5 µm, and has the lowest refraction index of all the common IR materials. Typical products include lenses, aspheric lenses, windows, wedges, and prisms.

MgF_2 optics

Magnesium fluoride is one of the lowest index IR materials, second only to LiF. It is transparent from 0.11 µm to 7.5 µm. MgF_2 widely used in different optical devices due to its high transparency in a wide spectral region (especially in vacuum UV), high thermal, mechanical, chemical, and radiation stability, birefringence, and good thermo-physical parameters. Typical products include lenses, aspheric lenses, windows, beam splitters, optical filters, wedges, and prisms.

Notch Filters

Notch filters (narrow-band holographic filters) are intended for suppression of powerful beams in research and industry, in particular in laser spectroscopy. It also protects photo receiver devices and operator's eyes from blinding and damaging by laser radiation.

Pockels cell

Electro-optic waveplate based on the Pockels effect. When a large voltage is applied to certain optical materials the electrical field induces birefringence in the material, thus under the proper crystal orientation flipping the polarization of light that will be transmitted. Often used to selectively gate or "dump" light from a laser cavity. Pockels cells are also the key element in pulse pickers used to select a single pulse from a high repetition pulse train.

Quartz optics

Crystal quartz is a very useful material because of its high UV, VIS and NIR transmittance, birefringence, ability to rotate plane polarized light, high damage threshold and resistance to scratching. The optical grade material features. The highest possible transmittance throughout the 190 - 2900 nm range. It has virtualy free from bubbles and inclusions and conforms with military striae grade A. Grown boules are Z - crystals about 50 mm along the optic axis.

Retroreflector

A retroreflector is a device that sends light or other radiation back in the direction of origin, parallel to the income beam, regardless of the angle of incidence. This effect can be commonly obtained in two ways with a set of three mutually perpendicular mirrors which form a right angle corner reflector (a corner reflector or corner cube). Corner cube retroreflectors based on fused silica are available at the optics store.

Silicon optics

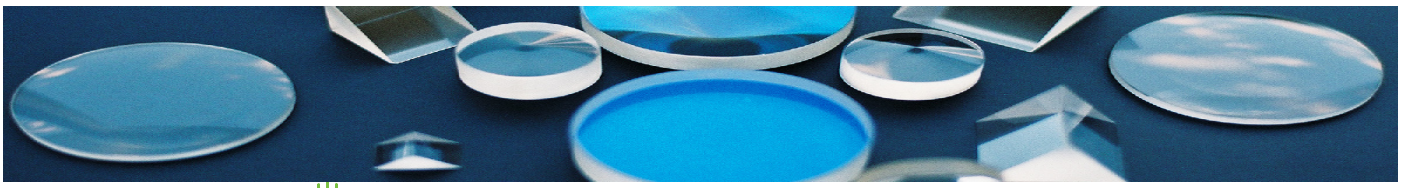
Silicon is used as a mirror substrate for lasers because of its thermal conductivity, light weight, and hardness. It is also used for windows and lenses in the 1.2 µm to 6.7 µm range. The refractive index is near 3.4 throughout the range. Silicon is also useful as a transmitter in the 20 µm to 300 µm range.

Waveplates

Waveplates, retardation plates or phase shifters, are made from materials which exhibit birefringence. The velocities of the extraordinary and ordinary rays through the birefringent materials vary inversely with their refractive indices. The difference in velocities gives rise to a phase difference when the two beams recombine. Half-waveplates can be used as continuously adjustable polarization rotators for rotating the plane of polarization. Quarter waveplates are used in creating circular polarization from linear, or linear polarization from circular. They are also used for ellipsometry, optical pumping, suppressing unwanted reflection and optical isolation.

Zero order waveplate

A zero order waveplate is constructed of two multiple order waveplates, optically contacted, cemented or airspaced, with their axes crossed. Thus, the effect of the first plate is canceled by the second plate, except for the residual difference between them. The term "zero order" means that phase shift between the ordinary and extraordinary beam is exactly p/2 for half wave retardation plates and p/4 for quarter wave retardation plates. Zero order waveplates are temperature independent, easy to align, and can generally be used for a spectral range in addition to a single wavelength, making them more useful for applications involving tunable lasers or laser diode applications, visible and thermal imaging; applications include astronomy and laser research.



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