precisionphotonics
making the impossible possible

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NOTABLE PRODUCTS & CAPABILITIES FOR 2011

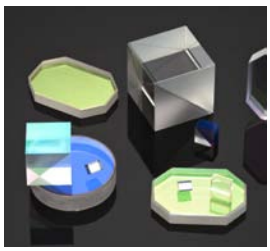
Large Aperture Coatings for Laser Optics up to 10” Diameter

To complement our 3” and 4” diameter wafer, mirror and waveplate capabilities, PPC has brought a new IBS coating chamber online capable of coating high-energy laser components of up to 10” in diameter. With the help of an SBIR grant earlier this year, we have spent most of 2010 modeling and testing various coating configurations in order to ensure both repeatability and uniformity across a larger substrate area. Our high-energy IBS coatings exhibit absorption losses of < 2 ppm and laser damage thresholds of > 40 J/cm^2 at 1064nm.

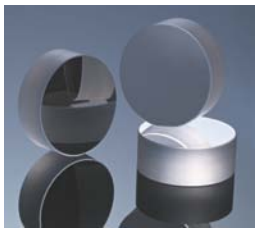
Super-polished surfaces on Fused Silica and Sapphire

PPC has the capability to both produce and measure plano substrates to less than $\lambda/10$ flatness with 10-5 surface quality and surface roughness of less than 1 angstrom RMS. Super-polished or laser quality polished substrates and assemblies are ideal for use as low-loss laser mirrors, high energy waveguides and in cavity ring-down spectroscopy (CRDS) where thermal stability, low scatter and high laser damage thresholds are key requirements. PPC can also IBS coat these components with anti-reflection, beam splitter, polarizing and high-reflection coatings from 260 nm to > 3000 nm.

High Energy Plate Polarizers and Broadband Cube Beamsplitters

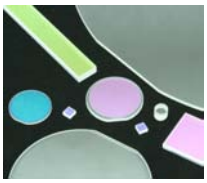
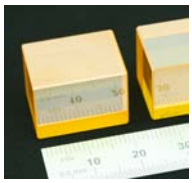
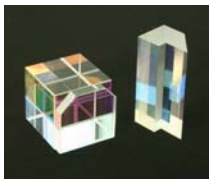
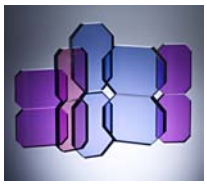
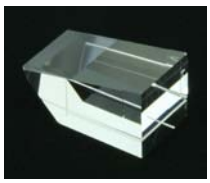


Precision Photonics manufactures high energy thin film polarizers and beam splitter cubes for wavelengths throughout the UV, VIS and NIR. By combining our durable IBS coatings with fused silica substrates and epoxy-free CADB® bonding, we produce high energy plate polarizers and assemblies that withstand up to three times the power levels of other commercially available products, with no angle tuning required. Product highlights include 45° thin film polarizers for 1064nm, custom Brewster plate polarizers at 2.1μm and low dispersion, broadband beamsplitter cubes.



Broadband Dielectric Laser Mirrors for VIS and NIR Regions

PPC stocks 1” diameter laser mirrors for single wavelength, multi-wavelength and broad bandwidth or broad field-of-view applications. Because they are manufactured with all-dielectric, IBS coatings, they can handle the high laser powers of both CW and pulsed systems, without the absorption of metal mirrors or polarization sensitivity of other commercially available dielectric mirrors. Custom reflector coatings are available on flat or curved substrates for wavelength regions from 260 nm to 3 microns.

Custom IBS Coatings for the Mid-IR (2.94μm-5 μm)

Precision Photonics’ IBS coatings provide outstanding performance for the new generation of solid state lasers operating at 2 μm (Ho:YAG, Ho:YLF, Tm:fiber, Tm:YAG), 2-3 μm tunable lasers (Cr:ZnSe), and 2.94 μm lasers (Er:YAG). In order to further expand and quantify our capabilities, we have active R&D projects and government SBIR programs for additional ion beam sputtered coating development throughout the mid-wave infrared (MWIR) wavelength region (2 to 5 microns).