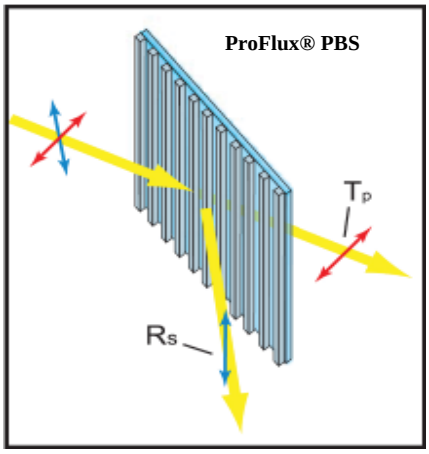
Wire-Grid Polarizing Beamsplitter



Applications

Display
- Projection
- Near-to-eye
- Heads-up Display

Pico-Projectors

Analytical Instrumentation

ProFlux® Beamsplitters

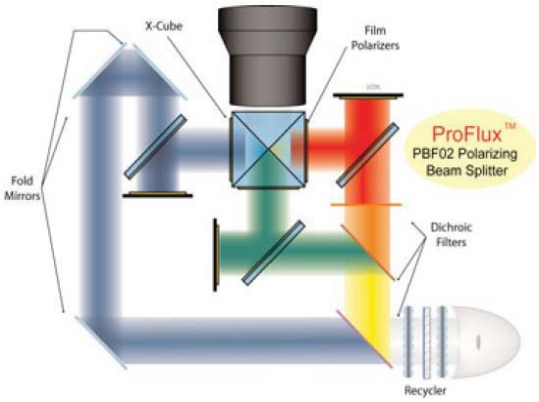
PBF02 - Optically Flat
Designed specifically for imaging applications where image quality is critical.
• Thicker borofloat polished substrate
• Improved wavefront

PBS02 - General Purpose
Lower cost version suitable for many applications with less stringent imaging requirements.

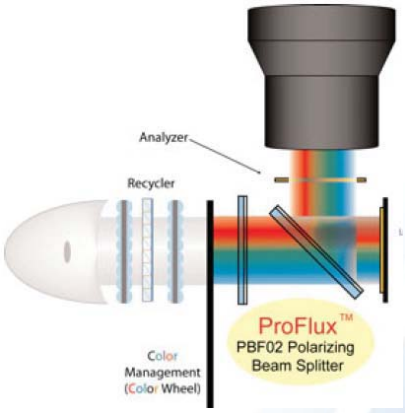
Moxtek has optimized its wire-grid technology to operate at 45° to provide for the highest durability polarizing beamsplitters. These beamsplitters can be used for a variety of both imaging and non-imaging applications for display products and scientific instruments. A key application for these beamsplitters has been in LCOS projection displays including the new generation of pico-projectors. The ProFlux® polarizing beamsplitter's wide angular aperture, excellent performance and exceptional reliability offer engineers more design options than ever before.

Benefits

• Large angular acceptance
• Exceptional uniformity even at high temperatures
• Demonstrated system contrast exceeding 10,000:1
• All inorganic structures
• Operates without degradation at high heat and light levels
• High UV energy resistance
• Mass manufacturing based on 200 mm wafer technology



3 Panel LCOS Engine



1 Panel LCOS Engine

MOXTEK®

Design Consideration

In order to obtain the best transmission and contrast, the beamsplitter should be used to transmit the p-polarization, using the standard definition of p-polarization and s-polarization. It is possible to use the beam splitter in the orthogonal orientation (transmission of the s-polarization), but with reduced efficiency and contrast. In a projection system it is recommended that the wire-grid surface be positioned to face the imager and projection lens to ensure the reflection is from the front surface of the beamsplitter.

Physical Data

	PBF02	PBS02
Glass:	Schott Borofloat	Display Grade
Thickness:	1.6 ± 0.1 mm	0.7 ± 0.07 mm
Flatness:	1.5λ Power,1.5λ Astigmatism	As drawn
Index of Refraction:	1.472 @ 588 nm	1.525 @ 430 nm 1.507 @ 1.0 µm
Thermal Expansion:	37.6 x 10 $^{-7}$/ °C (20-300°C)	7.6 x 10 $^{-7}$/ °C (0-30°C)
Scratch/ Dig:	As polished	As drawn
Dimensional Tolerance:	± 0.4 mm	± 0.2 mm

Typical Performance at 45°

Figure 1 Reflectivity (Rs)

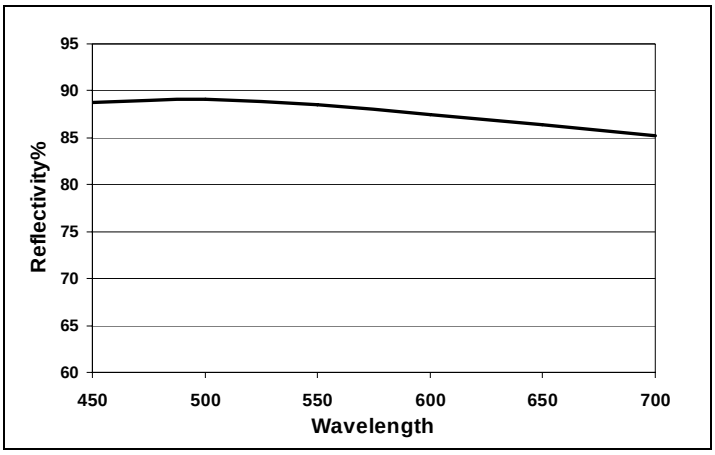


Figure 2 Reflectivity (Rp)

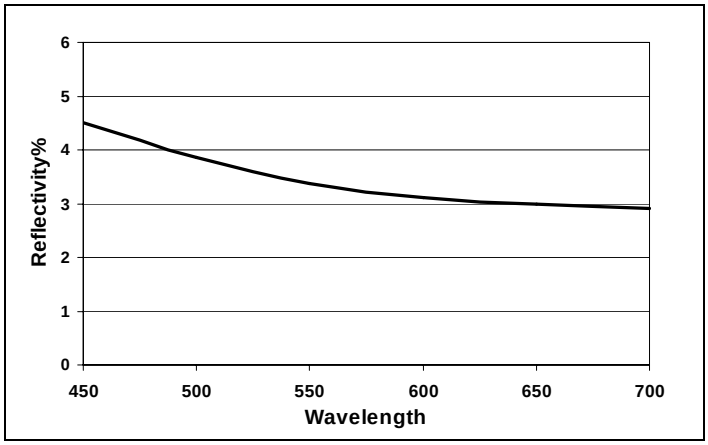


Figure 3 Transmission (Tp)

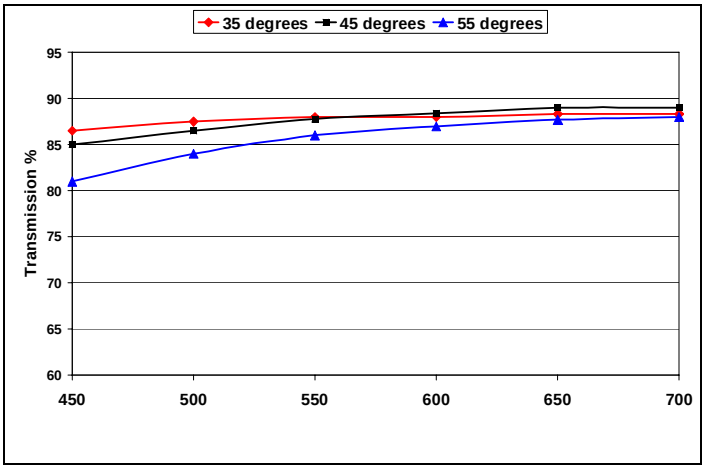
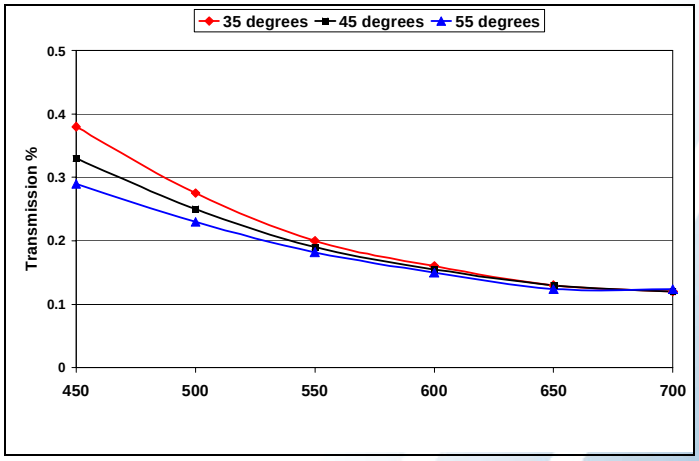


Figure 4 Transmission (Ts)



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