



PBS Beamsplitters
(mounting optional)

ProFlux® beamsplitter Nanowire® Technology is optimized to operate at 45°, providing durable polarizing beamsplitters. These beamsplitters can be used for a variety of both imaging and non-imaging applications for display products and scientific instruments. The ProFlux polarizing beamsplitter's wide angular aperture, excellent performance and exceptional reliability offer an excellent design choice.

Made with highly durable materials, ProFlux provides pure polarization that gives a high contrast and bright image for the life of the projector. The ProFlux polarization mechanism aligns ideally with the LC display and has excellent polarization uniformity even over large apertures, providing bright, high contrast, long-lasting displays.

Applications

- Head-Mounted Display (HMD)
- Head-Up Display (HUD)
- 2D & 3D Projection Display
- Interferometry
- Medical/Dental Imaging

Standard Product Options

Product Name	Description
PBS02A	Standard PBS-No AR
PBS02C	Standard PBS-AR
PBF02A	PBF, Flat (3λ/in), No AR
PBF02C	PBF, Flat (3λ/in), AR
PBF02A-UF	PBF-UP, Flat (2λ/in), No AR
PBF02C-UF	PBF-UF, Flat (2λ/in), AR
HCPBF	High Contrast PBF

Features

Benefits

Nanowire Technology	Brightness and contrast uniformity
	Excellent for optical designs with $f/\# < f/2.0$
	Wavelength and AOI independent
Inorganic	High heat resistance
Optical Flatness	Improved Wavefront Error for better channel alignment

General Specifications

	PBS	PBF	PBF-UF
<i>Glass:</i>	Display Grade Glass	Schott Borofloat®	Schott Borofloat®
<i>Thickness:</i>	0.7 ± 0.07mm	1.6 ± 0.1mm	1.6 ± 0.1mm
<i>Index of Refraction:</i>	435.8nm: 1.598 643.8nm: 1.5078	588nm: 1.472	588nm: 1.472
<i>Thermal Expansion:</i>	37.6 x 10 ⁻⁷ /°C (0-300°C)	37.6 x 10 ⁻⁷ /°C (20-300°C)	37.6 x 10 ⁻⁷ /°C (20-300°C)
	PBS	PBF	PBF-UF
<i>Finished Part Flatness:</i>	Not controlled	Improved	Best, <2λ /in
<i>Wavelength Range:</i>	420-700nm	420-700nm	420-700nm
<i>AR Coating:</i>	Optional	Optional	
<i>Dimensional Tolerance:</i>	± 0.2mm	± 0.4mm	± 0.4mm
<i>Edge Exclusion:</i>	2mm	2mm	2mm
<i>Transmission Axis (TA):</i>	Referenced to long side of part		
<i>TA Tolerance:</i>	± 1°	± 1°	± 1°
<i>Angle of Incidence:</i>	45° ± 15°	45° ± 15°	45° ± 15°
<i>Maximum Temperature:</i>	200°C > 5000 hrs	200°C > 5000 hrs	200°C > 5000 hrs
<i>RoHS:</i>	Compliant		

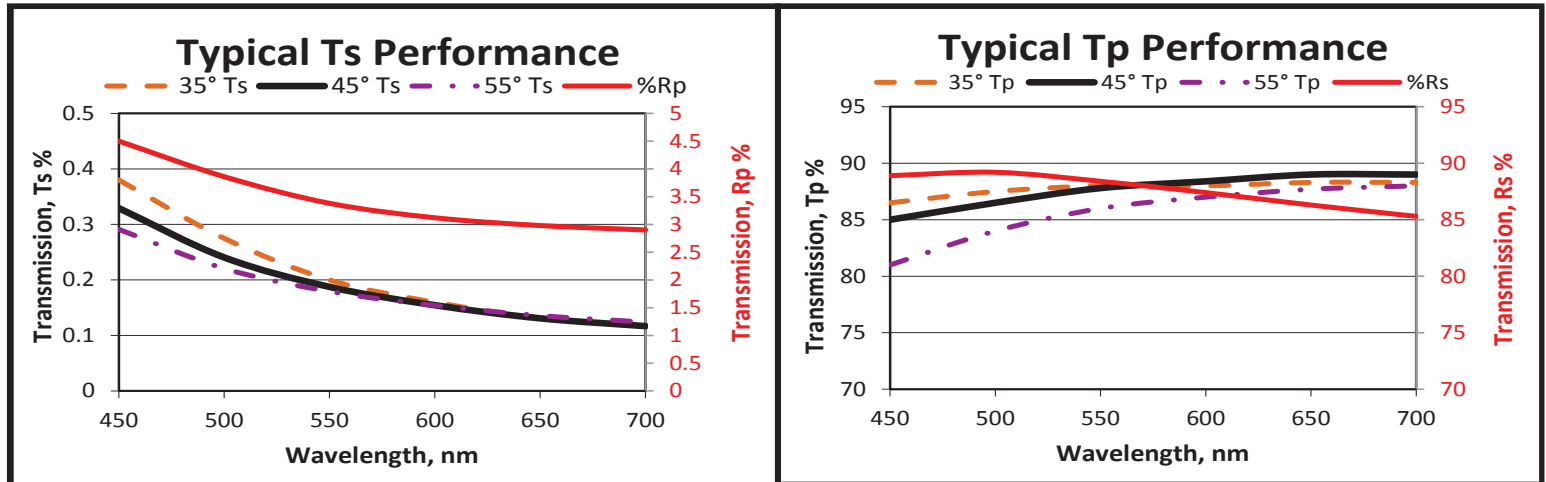
Design Consideration

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.

Beamsplitter Performance Table

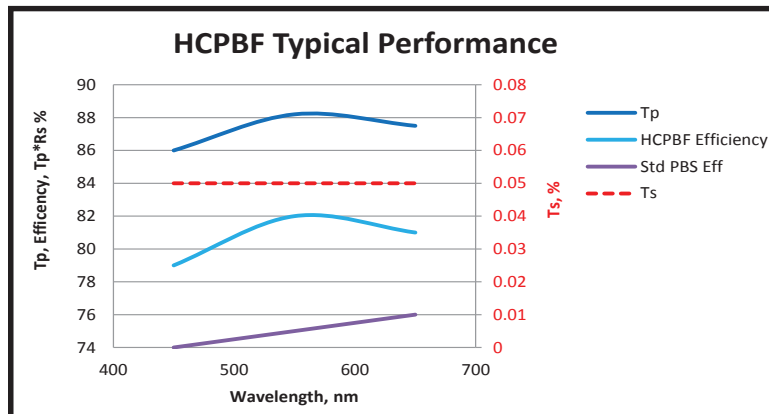
Product Type	450 TP (min)	550 Tp (min)	650 Tp (min)	450 Ts (max)	550 Ts (max)	650 Ts (max)	450 Eff (min)	550 Eff (min)	650 Eff (min)	Rp (max)
PBS02A / PBS02C	82.5	86.8	86.8	0.39	0.22	0.15	74	75	75	4
PBF02A / PBF02C	83	85.5	85.5	0.5	0.3	0.2	75.5	76.7	77	4
HCPBF	83	85.5	85.5	0.05	0.05	0.05	75.5	76.7	77	3

Typical PBS and PBF Performance at 45°



Typical HCPBF Performance at 45°

HCPBF (high contrast polarizing beamsplitter) performance comparison with standard PBF shows an increase in contrast of >10x.



452 West 1260 North / Orem, UT 84057
 Phone 801.225.0930 / Fax 801.221.1121
www.moxtek.com
info@moxtek.com