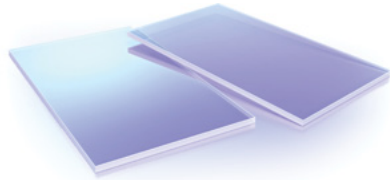


# High Contrast Thin Film Polarizers



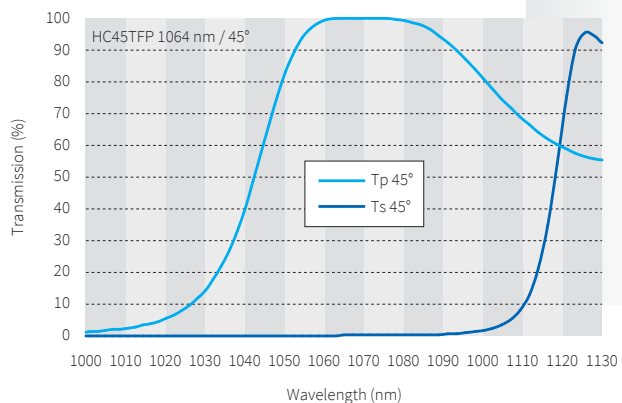
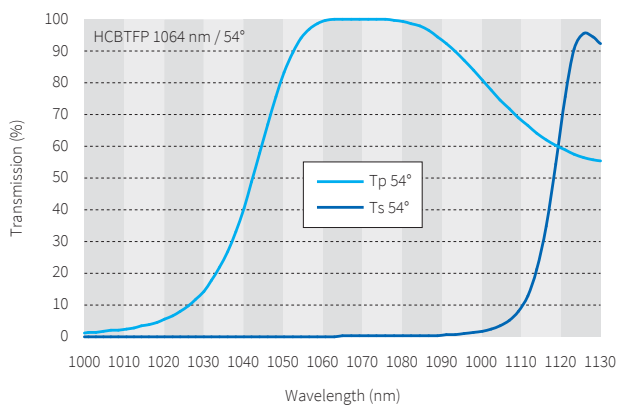
## Description

These high contrast Thin Film Polarizers (TFP) are made using advanced Ion Beam Sputtering (IBS) coating technology.

UVFS dielectric coated high contrast thin film polarizers separate the s- and p-polarization components of high energy laser beams. Due to very low losses they are perfect for intra and extra cavity usage.

Typical polarization ratio of these polarizers is well above 1000:1 (Tp:Ts). For optimal performance, high contrast Thin Film Polarizer should be mounted in an appropriate holder allowing angular adjustment.

We offer two types of high contrast polarizers - Brewster type and 45°



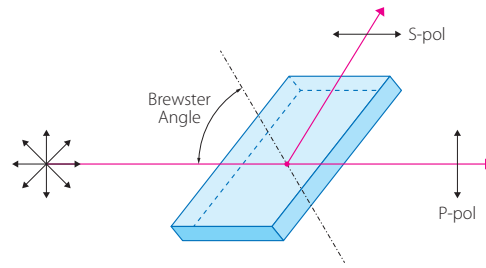
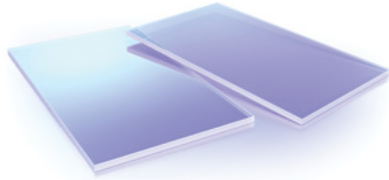
## Standard specifications

Substrate material	UVFS
Diameter tolerance	+0/-0.1 mm
Thickness tolerance	±0.1 mm
Clear aperture	>90%
Surface quality	20-10 S-D
Transmitted wavefront distortion (TWD)	<λ/10 @ 632.8 nm
Parallelism error	<30 arcsec
Laser damage threshold	up to 8.34 J/cm <sup>2</sup> @ 1030 nm; 11.1 ps; 10 Hz

## Features

- Made by IBS technology
- Tp:Ts >1000:1
- High Tp, low absorption & scattering
- No aging effects due to the negligible porosity of the coatings

# Brewster Type Thin Film Polarizers



## Description

Brewster type thin film polarizers are used for high energy applications.

They have high damage threshold reaching 10 J/cm<sup>2</sup> @ 1064 nm for 8 ns. Brewster type thin film polarizers are used as an alternative to Glan-Taylor laser polarizing prisms or cube polarizing beamsplitters.

Typically, BK7 or UVFS dielectric coated Brewster type thin film polarizers separate the s and p polarization components of high energy laser beams and are intended for intra and extra cavity usage.

Typical extinction ratio  $T_p/T_s$  is 200:1 and it is achieved at 56° AOI (Brewster angle). For optimal transmission Brewster type thin film polarizers should be mounted in an appropriate holder for angular adjustment.

## Features

- Efficiently separates the s- and p- polarization components
- Optimized for popular laser wavelengths
- Many Brewster type thin film polarizers are available from stock

## Standard specifications

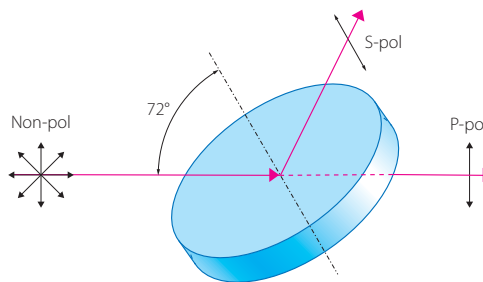
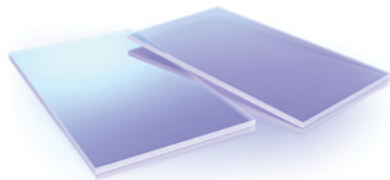
Material	BK7, UVFS
Diameter/dimension tolerance	+0/-0.1 mm
Thickness tolerance	±0.1 mm
Clear aperture	>90%
Surface quality	20-10 S-D
Transmitted wavefront distortion (TWD)	<λ/10 @ 632.8 nm
Parallelism error	<30 arcsec
Extinction ratio	$T_s/T_p < 1:200$
Typical transmission	$T_p > 95\%$
Typical reflection	$R_s > 99.5\%$
Angle of incidence	Brewster angle
Laser damage threshold reports	<a href="http://www.altechna.com/lidt">www.altechna.com/lidt</a>

## Miscellaneous

- Custom design of Brewster type thin film polarizers are available in small and mass production quantities
- Mass production capabilities: 3'000 pieces per month
- Brewster type thin film polarizers with dimensions up to 200x150 mm are available


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# Broadband (Ultrafast) Thin Film Polarizers



## Features

- Efficiently separates the s- and p- polarization components
- Optimized for popular laser wavelengths
- Many broadband (ultrafast) thin film polarizers are available from stock

## Description

Broadband (ultrafast) thin film polarizers are used for femtosecond lasers.

PLEASE NOTE: The optimal working angle is AOI=72° (±2°).

We are offering 4 types of broadband (Ultrafast) thin film polarizers. Polarizers work by transmitting p polarization and reflecting s polarization.

TRANSMISSION POLARIZERS - have polarizing coating on the input face while the output face is AR coated for p polarization. They can be optimized for highest transmission of p polarization  $T_p > 94\%$  or for best contrast of polarizations  $T_p:T_s > 20:1$ .

REFLECTION POLARIZERS - have polarizing coating on the input face while the output face is AR coated for both s and p polarizations. They can be optimized for highest reflection of s polarization  $R_s > 98\%$  or for best contrast of polarizations  $R_s:R_p > 60:1$ . Moreover, the AR coated side of a polarizer has wedge to minimize ghosting. Standard thin film polarizers are designed for optimum performance in the 750-850 nm or 980-1090 nm range. Design of custom wavelength range is also available.

## Standard specifications

Material	BK7, UVFS
Diameter/dimensions tolerance	+0/-0.1 mm
Thickness tolerance	±0.1 mm
Clear aperture	>90%
Surface quality	20-10 S-D
Transmitted wavefront distortion	$< \lambda/6$ @ 632.8 nm
Surface flatness	$< \lambda/6$ @ 632.8 nm
Angle of incidence	72° (±2°)
Parallelism error (Transmission type)	<30 arcsec
Wedge (Reflection type)	1° (±5 arcmin)
Laser damage threshold reports	<a href="http://www.altechna.com/lidt">www.altechna.com/lidt</a>

