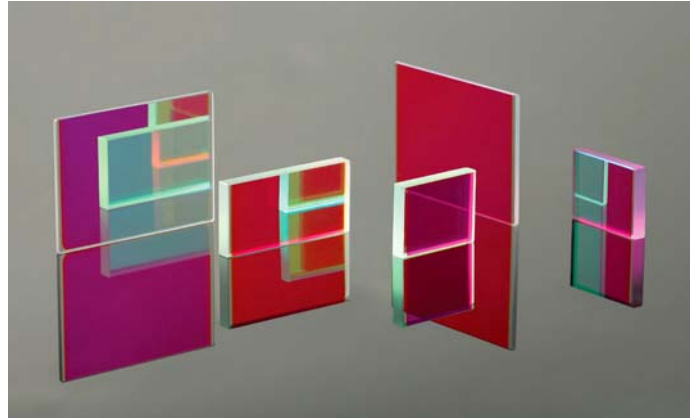


Adjustment-free High Power Thin Film Polarizers



Thin film polarizers are used in polarization separation. They are especially well suited for high power levels.

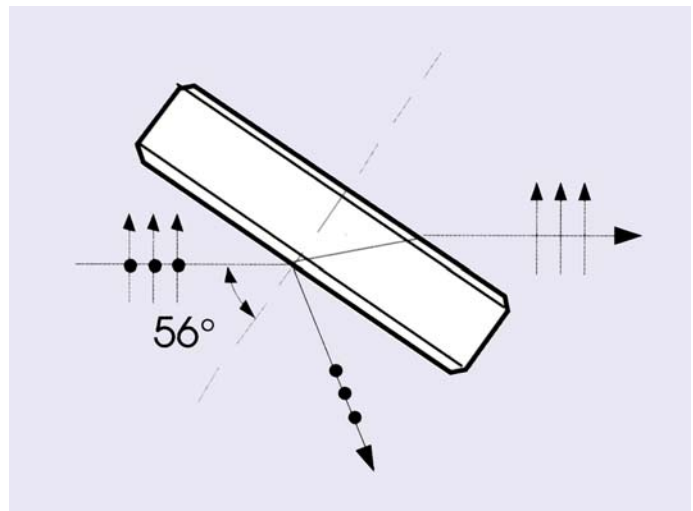
LASER COMPONENTS offers a wide range of polarizers. In addition to both common Glan Taylor polarizers made of calcite or α -BBO and cube polarizers, so-called thin film polarizers based on glass substrates are used for the highest power densities available.



WORKING PRINCIPLE

Thin film polarizers are assembled at the Brewster angle (ca. 56° , see figure) and equipped on one side with a dielectric coating.

This special coating features a high reflection of s-polarized light at a simultaneously high transmission of p-polarized light. Because these polarizers are used at the Brewster angle, the back side does not need to be coated.



HIGHEST DAMAGE THRESHOLDS

This type of polarizer possesses one of the highest damage thresholds available, reaching into the GW/cm^2 range (1064 nm, 10 ns pulse length).



NEW MANUFACTURING TECHNOLOGY ENABLES SIGNIFICANT ADVANTAGES FOR THE END PRODUCT

Said polarizers are manufactured using an IAD (ion assisted deposition) method. Ion assistance helps create compact and thermally stable layers. In addition, this coating process is monitored using a new broadband monitoring system, achieving an accuracy not previously achievable and securing the highest efficiency possible.

- Adjustment-free Application**
 In the past, a polarizer had to be adjusted to a certain angle in order to function as efficiently as possible. Now, this component can achieve peak performance when used at any angle between 53° and 59° (see graph; spectral distribution).
- Wavelength Independence**
 These new components are available at any wavelength between 450 nm and 1064 nm. The corresponding extinction ratio is better than 300:1.
- Improved Specifications**
 These new polarizers can also be used for diverging beams or even across a limited wavelength range! The reflection and transmission values could be significantly improved.

For example, at a wavelength of 532 nm guaranteed values amount to: $R_s > 99.5\%$ and $T_p > 95\%$ on average at an angle ranging from 53° – 59°. This corresponds to an extinction ratio of better than 300:1.

TFPB	-532-	RW28.6-14.3-3.2UV
Thin Film Polarizer Broadband	Wavelength in nm	Substrate

SPECIFICATIONS FOR 532 nm

- Angle of incidence:** 53° – 59°
 No adjustment necessary.
- Extinction:** $T_p/T_s \approx 300:1$
- Reflection:** $R_s > 99,5\%$
- Transmission:** $T_p \geq 95\%$
 On average between 53° – 59°.
- Standard wavelengths:**
 515 nm, 532 nm, 1030 nm, 1047 nm,
 1053 nm, 1064 nm
 Additional wavelengths available upon request.

