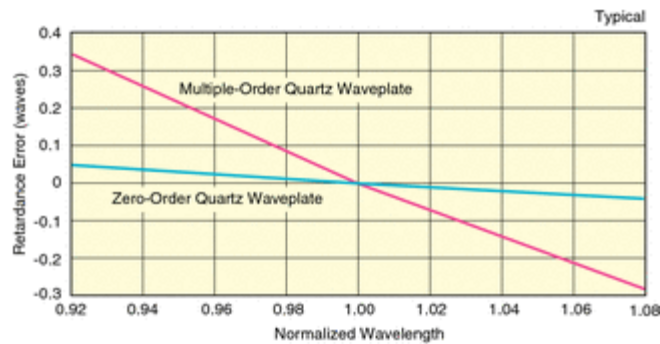


# Polarization Optics Selection Guide






Selecting the proper [Waveplate or Polarizer](#) for your application requires making a number of choices. A few of the many considerations include: polarization function, extinction ratio, transmission efficiency, laser damage resistance, wavefront distortion, and certainly cost. The information in this section should help in comparing the available choices from Newport.

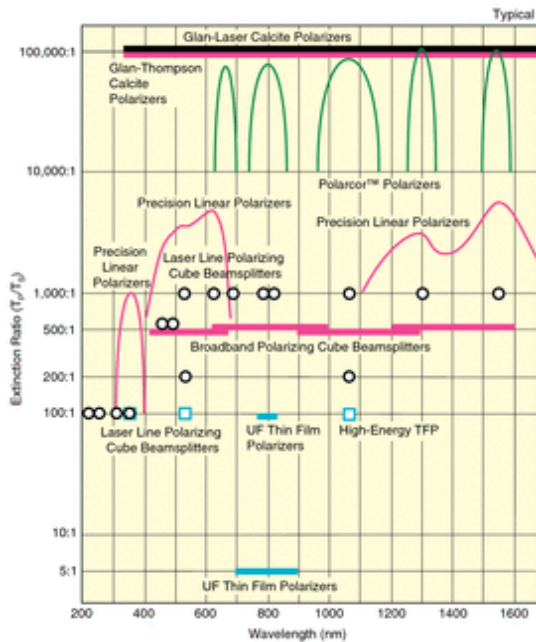
## Selecting an Polarization Optic

Click [Waveplates and Polarizers](#) to shop or browse all of our standard models, or select a product family below for more information. We also offer a wide variety of [Optical Mounts](#) for mounting your polarization optic.









## Wave Plates

Description		Retardation Accuracy	Features/Applications	Cost	Laser Damage Threshold
	<a href="#">Multiple-Order Quartz Wave Plates</a>	$\pm\lambda/300$	Dual wavelength multiple-order wave plates available	Low	2 MW/cm <sup>2</sup> CW, 2 J/cm <sup>2</sup> with 10 nsec pulses, typical
	<a href="#">Zero-Order Quartz Wave Plates</a>	$\pm\lambda/300$	Air spaced for high damage threshold, less sensitive to wavelength and temperature variation than multiple-order wave plates	Moderate	2 MW/cm <sup>2</sup> CW, 2 J/cm <sup>2</sup> with 10 nsec pulses, typical
	<a href="#">Zero-Order Precision Wave Plates</a>	$\pm\lambda/350$	Least sensitive to wavelength variation, best angular acceptance, large clear apertures available	Low/Moderate	500 W/cm <sup>2</sup> CW, 4 J/cm <sup>2</sup> with 20 nsec pulses at 1064 nm, typical
	<a href="#">Achromatic Zero-Order Quartz-MgF<sub>2</sub> Wave Plates</a>	From $\pm\lambda/50$ to $\pm\lambda/100$	Superior broadband performance, higher damage threshold than achromatic polymer film wave plates	Moderate	500 W/cm <sup>2</sup> CW, 2 J/cm <sup>2</sup> with 8 nsec pulses at 1064 nm, typical
	<a href="#">Achromatic Zero-Order Wave Plates</a>	$\pm\lambda/100$	Superior broadband performance, less sensitive to wavelength change and better angular acceptance than achromatic quartz-MgF <sub>2</sub> wave plates	High	500 W/cm <sup>2</sup> CW, 0.3 J/cm <sup>2</sup> with 10 nsec pulses, visible; 0.5 J/cm <sup>2</sup> with 10 nsec pulses at 1064 nm, typical



# Polarizers

Description		Extinction Ratio $T_p/T_s$	Transmission Efficiency	Features/Applications	Laser Damage Threshold
	<a href="#">Glan-Thompson Calcite Polarizers</a>	>100,000:1	$T_s > 90\%$	Extreme polarization purity, very broadband, cemented calcite prism design for lower power laser use, large acceptance angle permits use with diverging and converging beams	=1, Damage Threshold (uncoated)
	<a href="#">Glan-Laser Calcite Polarizers</a>	>100,000:1	$T_p > 92\% - 95\%$	Extreme polarization purity, very broadband, air spaced design for high damage threshold, exit apertures provide for safe escape of rejected polarization	500 W/cm <sup>2</sup> CW, 4 J/cm <sup>2</sup> with 10 nsec pulses, typical (uncoated)
	<a href="#">Polarcor™ Linear Polarizers</a>	>10,000:1	$T_p > 79 - 94\%$	Very high polarization purity, large acceptance angle, compact design, less expensive than calcite polarizers	1000 W/cm <sup>2</sup> CW, 6 J/cm <sup>2</sup> with 13 nsec pulses at 1064 nm (pass), typical 30 W/cm <sup>2</sup> CW, 0.17 J/cm <sup>2</sup> with 13 nsec pulses at 1064 nm (block), typical
	<a href="#">Precision Linear Polarizers</a>	>150-4,000:1		Large apertures available, for lower power laser applications	1 W/cm <sup>2</sup> CW, 0.2 J/cm <sup>2</sup> with 20 nsec pulses, visible, typical
	<a href="#">High-Energy Nd:YAG Laser Thin Film Polarizers</a>	>100:1	$T_p > 95\%$	High damage threshold, high transmission efficiency at Nd:YAG wavelengths	5 MW/cm <sup>2</sup> CW, 5 J/cm <sup>2</sup> with 10 nsec pulses at 10 Hz @ 1064 nm
	<a href="#">Thin Film Polarizers For Ultrashort Pulses</a>	$T_p/T_s > 5:1$ & 95:1	$T_p > 95\%$ avg.	Low dispersion minimizes pulse broadening, high transmission efficiency over the Ti:Sapphire tuning range	